



Taylor & Mulder
Property and Casualty Consulting Actuaries

MISSOURI PETROLEUM STORAGE TANK INSURANCE FUND

**LOSS AND LOSS ADJUSTMENT EXPENSE
RESERVE ANALYSIS
AS OF JUNE 30, 2015**

SEPTEMBER 2015



Taylor & Mulder
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September 3, 2015

Ms. Carol Eighmey
Executive Director
Petroleum Storage Tank Insurance Fund
P.O. Box 836
Jefferson City, MO 65102

**RE: ACTUARIAL ANALYSIS OF THE PETROLEUM STORAGE TANK INSURANCE FUND
AS OF JUNE 30, 2015**

Dear Ms. Eighmey:

Enclosed is the actuarial review of the loss and allocated loss adjustment expense reserves of the Missouri Petroleum Storage Tank Insurance Fund as of June 30, 2015.

The first section in the text of our report is the Executive Summary section. This section presents our conclusions and recommendations. It also describes the purpose and scope of our report, explains the distribution and use of our report, and provides the conditions and limitations underlying our work. This section of our report includes the Background section which provides information about the PSTIF program history.

The next section of the text of our report is the Actuarial Analysis section that describes the sources of data, our overall methodology, the selection of factors and specific methodologies and considerations by line of business. It also describes the selection of ultimate losses, and loss reserve discounting. The Exhibits section of our report follows the text of the report and includes all of our analyses.

Please feel free to call if you have any questions regarding any aspect of our report.

Sincerely,

Jane C. Taylor, FCAS, MAAA, JD

E. Toni Mulder, FCAS, MAAA, FCA

Daniel W. Lupton, FCAS, MAAA, MBA

Enclosures

Missouri Petroleum Storage Tank Insurance Fund Loss and Loss Adjustment Expense Reserve Analysis as of June 30, 2015

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Executive Summary

Purpose and Scope

Taylor & Mulder, Incorporated (“T&M”) was requested by Missouri Petroleum Storage Tank Insurance Fund (“PSTIF”) to conduct an actuarial review of its loss and loss adjustment expenses reserves as of June 30, 2015. This report contains our summary, conclusions and recommendations along with a description of the analysis underlying our conclusions.

Specifically, T&M was asked by the PSTIF to conduct an actuarial analysis to include within its scope the following tasks:

- A review and opinion on the adequacy of current claim reserves,
- A projection of future claim liabilities, including an estimate on future claim severity and frequency, separately for each claim type, and
- An analysis of large loss claims, including:
 - Information on the typical lag time between the time when a claim is opened and the time it is identified as a “large loss claim,”
 - The history of losses and reserving practices on “large loss claims,” and
 - Information on how “large loss claims” are expected to impact the PSTIF’s future finances.

This report presents the results of those analyses. This report was prepared by Jane C. Taylor, FCAS, MAAA, Principal and Consulting Actuary, Evelyn Toni Mulder, FCAS, MAAA, FCA, Principal and Consulting Actuary and Daniel W. Lupton, FCAS, MAAA, MBA, Vice President and Consulting Actuary.

In accordance with the requirements of the Actuarial Standards of Practice in making statements of actuarial opinion, I provide the following statement:

I, Jane C. Taylor, am Principal and Consulting Actuary in the firm of Taylor & Mulder, Inc. I am a Fellow of the Casualty Actuarial Society in good standing and qualified to issue a Statement of Actuarial Opinion. I am also a Member of the American Academy of Actuaries.

Background

In the early 1980s, the federal government recognized that an underground storage tank (“UST”) could present an environmental hazard. At the time, many underground petroleum tanks were fabricated of unprotected steel which was subject to corrosion and deterioration leading to contamination of the surrounding soil and, perhaps more importantly, nearby groundwater. By 1984, legislation was in place to permit the Environmental Protection Agency (“EPA”) to set standards for tank design, installation, and protection to minimize the danger of future releases of petroleum or other hazardous chemicals stored underground. There have been additional EPA standards and regulations for tanks to further strengthen measures to protect the environment and groundwater. Included in these rules are requirements for tank owners and operators to have minimum levels of financial resources to deal with leaks and spills that might occur.

Under the current federal guidelines for tanks and the requirements of the Missouri Department of Natural Resources (“DNR”) for tank construction and installation, most current leaks and spills were the results of failure of piping fittings and joints or the dispensing mechanisms rather than the tanks themselves. However, defective fittings or joints may still result in leaks that remain undetected for a period of time leading to ground water contamination.

Missouri responded to the federal actions and established the Petroleum Storage Tank Insurance Fund (“PSTIF”) in 1989 to assist owners and/or operators of underground storage tanks in meeting federal financial responsibility rules. In 1992, the PSTIF began offering insurance to underground tank owners

and/or operators to pay for the costs associated with petroleum leaks and spills in the state of Missouri. The policies are written on a claims-made basis.

In 1995, the Missouri mandate for protection was expanded to include cleanup of petroleum contamination from uninsured leaks and spills. Uninsured risks included operations that had been closed prior to the financial responsibility requirements and non-insured sites. Therefore, PSTIF pays for remediation costs associated with uninsured aboveground and underground storage tanks that were in use prior to the inception of the PSTIF but are no longer in use. In some cases, petroleum releases went undetected (for example, at old gas stations) for many years. When recent tests reveal petroleum contamination as a result of such disused sites and a party is identified who is willing to assume responsibility for directing remediation efforts, PSTIF will pay for the remediation associated with that leak or spill subject to certain criteria.

In 1996, the PSTIF was opened to aboveground storage tank (“AST”) owners and/or operators to purchase protection. In 2008, the Missouri legislature mandated that, beginning in 2011, aboveground storage tank owners and/or operators demonstrate financial responsibility for liability arising from any leak or spill. This increased the number of aboveground tanks insured by PSTIF.

During 2002, PSTIF began offering extended reporting endorsements for AST owners and/or operators taking tanks out of service. Beginning in 2004, UST owners and/or operators have been able to buy an extended reporting endorsement. The endorsement extends the claim reporting period for up to five (5) years after the tank is retired from service or sold.

The initial legislation enabling the PSTIF had an expiration date of December 31, 1998. Additional legislative actions have moved the date to 2003, 2010, and finally to December 31, 2020. All projections performed by T&M in this report assume a December 31, 2020, expiration date.

In contrast to many such state funds, which often act more as government grant programs than insurance programs, the PSTIF requires tanks owners and/or operators to complete an application and be approved to receive a coverage document. The coverage document is either the Underground Storage Tank Participation Agreement or the Aboveground Storage Tank Pollution Liability Policy depending on the type of tank insured. The application and approval process allows the PSTIF to enforce compliance with developing storage tank standards.

In the event that a leak or spill is discovered after the retroactive date of a policy (the date at which coverage initially attaches), the fund will pay for the first \$1,000,000 of the costs per event, subject to a \$2,000,000 annual aggregate. Each event carries a \$10,000 deductible. Coverage attaches provided that the leak is discovered after the retroactive date.

Storage tanks claims are categorized into the following groups:

- Insurance UST – Release: Underground storage tank petroleum releases from insured tanks;
- Insurance UST – Closure: Underground storage tank petroleum releases from insured tanks that were discovered when the tank was being removed from an insured site;
- Insurance UST – Other: Underground storage tank petroleum releases from insured tanks that do not fit into either of the above categories;
- Remedial UST: Cleanup costs associated with remediation of uninsured underground storage tank sites that were in use prior to the deadline set by the Missouri Legislature;
- Insurance AST: Aboveground storage tank petroleum spills from insured tanks, and
- Remedial AST: Cleanup costs associated with remediation of uninsured aboveground storage tank sites that were in use prior to the deadline set by the Missouri Legislature.

Terms Defined

ALAE Allocated Loss Adjustment Expense (“ALAE”) is the amount of money spent on a particular claim to the benefit of an insured, the amount that can be allocated to a single claim. These expenses include the attorneys’ fees, expert witnesses, collection and protection of material germane to the claim, etc. For the PSTIF, ALAE does not include Third Party Administrator (“TPA”) expenses.

Claims-Made Claims-made coverage is a type of insurance coverage that provides protection for the insured on claims reported during the policy period given that the incident giving rise to the claim occurred on or after the Retroactive Date (“retro date”). The retro date is usually the date the first claims-made policy was issued to the insured. PSTIF issues claims-made policies to its insureds.

Claims-made coverage is in contrast to occurrence coverage which responds to claims brought against the insured given that the incident giving rise to the claim occurred during the policy period. Both private passenger automobile and homeowners policies are written on an occurrence basis.

Claim Frequency Claim frequency is the average number of claims per insured exposure. For PSTIF, an insured exposure is one tank insured for one year. For example, if 250 claims are reported in a year with 10,000 insured tanks, the claim frequency (average number of claims per insured exposure) is $250 / 10,000 \text{ insured tanks} = 0.025 \text{ claim per tank}$.

IBNR Incurred But Not Reported (“IBNR”), strictly speaking, is a reserve derived by actuaries for claims not as yet reported to the insurer for which premium has been

earned and for which the insurer is responsible. Under this narrow definition of IBNR, claims-made policies would not have IBNR as all claims are known at the end of the policy period (or very soon thereafter). However, the term IBNR for claims-made insurance is used in a broad sense and includes changes in incurred amounts (i.e., paid plus case reserves) for known claims.

Claim estimates done by a claim department must rely on information about the claim at a point in time. That information may be lacking in important details that will greatly impact the ultimate cost of the claim. Actuaries review the data from the aggregated claims data by year as it changes over time, from the first report of the claim to settlement. From these reviews, the actuary can calculate factors to apply to current case data to estimate the ultimate costs of a body of claims. The difference between estimated ultimate values and current case incurred is IBNR.

Because coverage provided by the PSTIF is claims-made rather than occurrence, all references to IBNR in this report will typically refer exclusively to development on known claims unless otherwise noted.

LAE Loss Adjustment Expense (“LAE”) is the sum of Allocated Loss Adjustment Expense (“ALAE”) and Unallocated Loss Adjustment Expenses (“ULAE”) and represents the total costs of handling and defending claims.

LDF A Loss Development Factor (“LDF”) is calculated by an actuary from historical claim data and applied to current paid or incurred values to estimate ultimate claim costs for an insurer.

Pure Premium Pure Premium is the average cost of insurance per insured exposure. For PSTIF, an insured exposure is one tank insured for one year. An example might help clarify the concept. If two tanks are insured and one has a claim for \$100, then the pure premium (average loss per insured exposure) is $\$100 / 2 \text{ insured tanks} = \50

Severity Severity is the average size of claim for a given collection of claims. For instance, if the total cost for three claims is \$45,000, the claim severity (average size of claim) is $\$45,000 / 3 \text{ claims} = \$15,000 \text{ severity}$.

ULAE Unallocated Loss Adjustment Expense (“ULAE”) represents the expenses. For the Fund, ULAE represents costs associated with the TPA.

Conclusions

Loss and Loss Adjustment Expense Reserve Adequacy

T&M analyzed loss and loss adjustment expense reserves for the six broad categories of claims enumerated above. The following table shows the results of our analysis for these categories:

Missouri Petroleum Storage Tank Insurance Fund				
Undiscounted Unpaid Loss & ALAE as of June 30, 2015				
Claim Type	Case Outstanding	IBNR	Unpaid ALAE	Unpaid Loss & ALAE
Insurance UST - Release	7,074,609	3,558,709	29,650	10,662,968
Insurance UST - Closure	11,001,715	4,315,660	41,017	15,358,393
Insurance UST - Other	8,760,681	9,180,780	56,664	17,998,124
Remedial UST	23,193,279	4,478,012	67,166	27,738,457
Insurance AST	7,421,228	2,627,803	26,484	10,075,516
Remedial AST	3,602,145	188,341	8,313	3,798,799
Total	61,053,657	24,349,306	229,294	85,632,256

As reserves are held for a number of years, investment income has a measurable impact on needed funding. T&M used the investment yield equal to 0.63%, based on historical investment returns earned by the State. The following table shows the results of our analysis taking into account the effect of investment income:

Missouri Petroleum Storage Tank Insurance Fund			
Discounted Unpaid Loss & ALAE as of June 30, 2015			
Claim Type	Undiscounted Unpaid Loss & ALAE	Discount	Discounted Unpaid Loss & ALAE
Insurance UST – Release	10,662,968	491,225	10,171,743
Insurance UST – Closure	15,358,393	675,622	14,682,771
Insurance UST – Other	17,998,124	778,155	17,219,969
Remedial UST	27,738,457	1,074,214	26,664,244
Insurance AST	10,075,516	316,376	9,759,139
Remedial AST	3,798,799	145,643	3,653,156
Total	85,632,256	3,481,234	82,151,022

Although Remedial UST claims made up the majority of the case reserves, IBNR is concentrated in Insurance UST - Other, indicating greater development on known claims in that coverage. The bulk of unpaid losses are attributable to Remedial UST. In the future, as remedial claims are closed and future

remedial claims decrease in number (proportional to the decreasing number of remedial sites), we expect Remedial UST to decrease as a portion of unpaid loss and LAE compared to other claim types.

As of May 31, 2015, the PSTIF held \$87,184,023 in reserves for claims payable. This is \$1,551,767 redundant when compared with the undiscounted unpaid loss & ALAE, and \$5,033,001 redundant when compared with the discounted unpaid loss & ALAE.

If PSTIF were a commercial insurance company, statutory insurance accounting rules would require that all estimated future costs for claims administration for open claims be held as reserves. T&M has estimated those additional costs for Williams to handle all open claims until final settlement at \$15,105,381 on an undiscounted basis and \$14,491,297 on a discounted basis. This amount is not included in the tables above. This amount reflects the extended time horizon over which PSTIF claims are paid.

Because claims are paid incrementally over an extended period, investment income can have a significant impact on the present value of ultimate losses. Projected investment income for this report was 0.63%, based on historical investment yields earned by the State. As a result, as shown in the second chart, above, investment income amounts to approximately 4.1% of undiscounted losses. Improvements in investment yield could increase this amount significantly.

Note that these reserves do not include a provision for claims not yet reported to the PSTIF.

Reserving Practices

Claims handling and underwriting is provided by Williams & Company Consulting, Inc. (“Williams”) under a third party administrator (“TPA”) contract with the PSTIF. The Williams claim staff is headed

by David Walters, who brings insurance industry experience to the claims handling team. Much of the remaining staff has a technical background in engineering or geology and significant experience in handling claims for the PSTIF.

We met with Mr. Walters on July 22 and July 23, 2013 to discuss Williams' claims handling philosophy and to review a number of claim files. Williams' claim philosophy entails providing a swift response to reports of insured leaks and spills in order to minimize further contamination and the associated increased liability. A swift response also enables the claim department to secure pertinent physical evidence (such as piping, valves, etc.) before it is discarded.

Claims handling is somewhat different than that of an insurance company in that the PSTIF was created to protect the environment and the citizens of Missouri from the impact of petroleum releases. Therefore, the claims handling effort is focused on reasonable and necessary costs for effective response to the leak or spill. The number of PSTIF lawsuits appears relatively modest when compared to commercial general liability insurers. Those claims involving lawsuits have defense counsel assigned as would be expected.

Claims are handled by having the contractor or the consultant assisting the owner and/or operator submit a proposed work plan and estimated costs to the PSTIF. The planned costs may be challenged by the claims adjuster to craft a more reasonable response if required. Proposed costs must be deemed "reasonable" to be approved. Once the project is started, costs are submitted to the PSTIF for payment or reimbursement.

Remedial claims present a unique situation that would not be encountered in a commercial insurance company. Often the site has been abandoned completely or converted to a different use. Remedial

claims generally move forward only when a responsible party is willing to step forward and participate in the remediation process, which usually includes paying the \$10,000 deductible.

In 2013, T&M reviewed randomly selected PSTIF claim files. That review revealed that the claim department does “push back” on submitted plans that may be more expensive than needed in a given situation. Notes in various files indicated that Williams’ claims adjusters notified a contractor or consultant that costs exceeded normal levels for the service to be rendered. In some cases reviewed, the claims adjusters have suggested a more cost effective plan for the clean-up and monitoring process than that proposed by the contractor or consultant. There is evidence in the reviewed files that as costs are submitted to the PSTIF items may be denied payment or have reduced payments made if the requested amount is outside the bounds of normal expected payment levels for that item or process.

Adjustors are also charged with establishing appropriate case reserves for the PSTIF. In insurance companies, aggregate incurred values (paid plus case reserves) tend to increase over time as more information regarding claims becomes known. While aggregate incurred values for PSTIF hold to this pattern over a long run, incurred values measured at twelve months (the end of the first annual fiscal period for the reported claims) tend to be somewhat higher on average than that of those same claims at twenty-four months for at least some report years. This means that aggregate incurred values are decreasing in the less mature evaluation periods. This pattern is observed in three of the coverage lines, as well as overall for all coverages combined. Overall, incurred values produce low loss development factors, which indicates that the case incurred values are a reasonable indicator of the ultimate cost of the claims, particularly for the UST Closure and UST Remedial claims.

When the proposed work plan for the leak or spill site has been completed and all monitoring results are within required limits, the claimant’s environmental consultant informs the Missouri DNR that the impact of the leak or spill meets the current remediation standards. Once notified by the claimant’s

environmental consultant, the DNR will then issue a "No Further Action" ("NFA") letter, meaning the claim is now considered closed. Claims not actively being managed by the owner and/or operator (i.e., cleanup activities have been abandoned or monitoring is not in place) are placed in suspense. Essentially, this means that the claim is not progressing toward the issuance of an NFA letter by the Missouri DNR. These stalled claims are removed from the suspense list and handled in a normal manner if someone again takes an interest in completing the cleanup at a future date.

Underwriting

Williams provides underwriting services as part of its TPA function. Underwriting guidelines are established by the PSTIF and Williams to determine the insurability of any given tank. An application for insurance with the PSTIF must be filled out by the tank owner and/or operator along with a method of securing payment of the \$10,000 deductible. In addition, the tank owner and/or operator must demonstrate that the tanks under their control are not currently leaking.

Policies are written on a claims-made basis which means that claims must be reported during the policy period in order to be covered. Remedial claims are covered as reported without the requirement that coverage was in effect at the time of the release. If the tank system(s) that leaked are still in operation, however, coverage must be continuously maintained.

Data required on the application for insurance with PSTIF for UST installations include such items as the installation date, the tank capacity, the type of product contained, estimated monthly throughput, type of tank (e.g., single walled, double walled, fiberglass, etc.), type of piping, and details on overfill and leak protection. The PSTIF application for AST's requires similar documentation requirements along with information on the secondary containment system in place.

Applications for insurance with the PSTIF are reviewed by Williams' personnel and deficiencies are noted. Policies are only issued if the application information is found to be satisfactory.

Future Loss and Loss Adjustment Expense, Claim Severity, and Frequency

T&M was asked to estimate costs for claims to be reported in 2015 and subsequent years, i.e., claims that have not as yet been reported to PSTIF. To perform this projection, T&M applied several methodologies to estimate future loss and loss adjustment expenses based on claim frequency and claim severity for each claim category.

Projection of Frequency and Severity

As part of projecting the financial condition of the PSTIF through December 31, 2020, we estimated (1) future claims reporting and (2) future claim severity for each claim category.

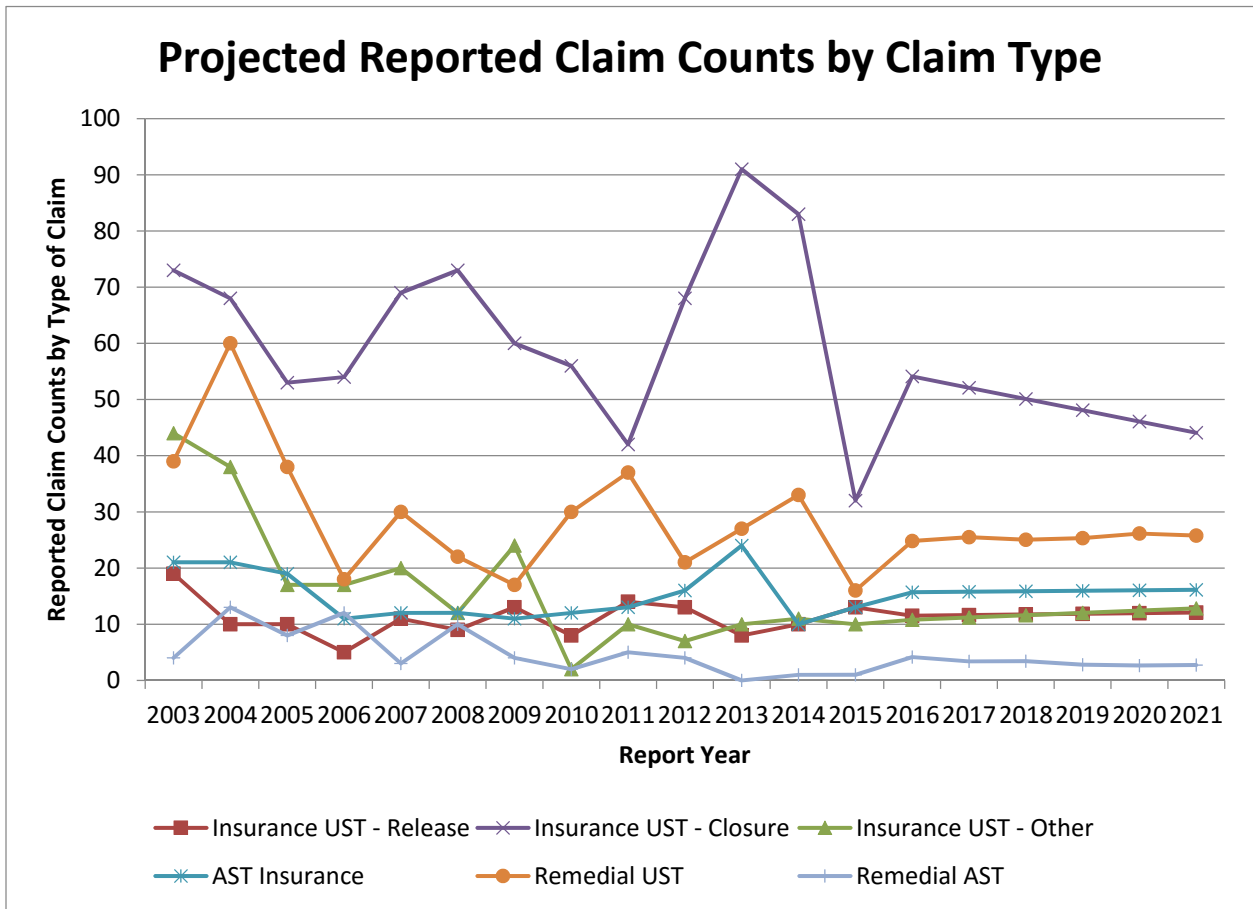
To project future reported claims counts, T&M used a variety of regression techniques. The results from those analyses led us to project a modest positive trend in claim counts for Insurance UST – Release, Insurance AST, and Remedial UST claims. The same regression technique projects a modest negative trend in counts for Insurance UST – Other, Insurance UST – Closure, and for AST remedial claim types.

Although it was anticipated that all remedial claim types would show a modest negative trend, it appears that in recent years there has been an increase in reporting for Remedial UST claims. For this reason, our projections point to a modest increase in Remedial UST claims over the next several years before an eventual decline in Remedial UST reports.

Analysis of policies in-force indicates a modest negative trend in the number of UST policies in-force and a positive trend in AST policies in-force. In the case of in-force AST policies, the PSTIF provided a likely maximum of 1,100 in-force policies at any given time, given a total population of 1,255 sites with ASTs and a likely maximum of 80% to 85% of potential penetration by PSTIF. Our projections suggest that the number of AST policies in-force will approach this number asymptotically over the next several years.

The current analysis of average claim severities this year suggests that Insurance UST – Release and Insurance UST – Other claims will tend to increase in average severity over time. Insurance UST – Closure and Insurance AST claims will tend to decline in average severity over time, and remedial claims of all types will tend to stay at about the same average severity level over time.

The following chart displays historical and projected claim counts by claim type:



Projection of Revenues

The PSTIF has two primary sources of revenue: transport load fees (“TLF”) and participation fees, which is the actual premium charged for the insured risks. Transport load fees are charged to transporters of petroleum on a per load basis. TLF make up the majority of the PSTIF revenues. From 2001 until September 1, 2008, TLF fees were \$40 for 8,000 gallons of petroleum product transported. On September 1, 2008, the TLF fee was reduced to \$20 per 8,000 gallons of petroleum product transported and that charge has remained constant. Enabling legislation grants PSTIF the authority to raise the TLF should the need arise. The overall maximum TLF is set at \$60 per 8,000 gallons of petroleum product by legislation.

Participation fees are charged to tank owners on the basis of the number and categories of tanks insured. For USTs, the participation fee is \$100 per tank for double-walled tanks, and \$125 per tank for single-walled. For ASTs, the fee is \$100 per tank for tanks with a capacity less than 25,000 gallons and \$200 per tank of 25,000 gallons or more. A “new tank” charge of \$100 per tank is a one-time premium payment in addition to the participation fee for both UST and AST tanks payable during the first year of insurance with PSTIF.

T&M has relied on projections of future revenues provided by the PSTIF. We have reviewed these projected revenues for reasonableness and found they are reasonable based on current economic conditions. However, T&M has not attempted to quantify the potential impact on PSTIF revenue of the move to more fuel efficient vehicles and to alternative vehicle fuels. In addition, no attempt has been made to quantify the impact of significant changes in fuel prices on the TLF revenue stream.

Projection of Future Cash Flows

T&M was asked to project cash flows to the PSTIF through the December 31, 2020. To perform this analysis, we combined projections of future claim frequencies and severities, projections of future revenues, and projections of future expenses associated with the PSTIF’s third-party administrator.

Future paid losses were simulated based on assumed probability distributions for frequency, severity, and claim payment speeds. Simulated claim payment speeds also affected the payout speeds of unpaid claims from historical report years.

The following page shows the projected cash flows from July 1, 2015 through December 31, 2020:

Financial Projections Based on PSTIF 2015 Projections

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(K)
	Annual Revenues Fiscal Year:	2016	2017	2018	2019	2020	2021 (1/2)	Totals
(1)	Transport load fees	11,100,000	11,050,000	11,000,000	10,950,000	10,900,000	5,425,000	60,425,000
(2)	100 Initial tank fees	20,000	20,000	20,000	20,000	20,000	10,000	110,000
(3)	UST participation fees	914,195	910,905	907,615	904,325	901,035	430,473	4,968,548
(4)	AST participation fees	357,890	366,290	366,290	366,290	366,290	174,745	1,997,795
(5)	Interest income	338,467	364,848	513,825	930,604	1,224,654	1,008,911	4,381,309
(6)	Total Revenues	12,730,552	12,712,043	12,807,730	13,171,219	13,411,979	7,049,129	71,882,652
	Administrative Expenses Fiscal Year:	2016	2017	2018	2019	2020	2021 (1/2)	Totals
(7)	Third Party Administrative Expenses	3,033,898	2,973,220	2,913,756	2,855,481	2,798,371	1,371,202	15,945,928
(8)	Section 319.107 Expenses	15,450	15,914	16,391	16,883	17,389	8,956	90,983
(9)	Inspections	368,637	379,696	391,087	402,820	414,905	207,453	2,164,598
(10)	Training & Loss Prevention Services	36,250	37,023	26,523	27,319	28,138	14,491	169,744
(11)	Other Professional Expenses	123,220	115,638	139,107	122,680	146,361	65,076	712,082
(12)	Legal Expenses	74,160	76,385	78,677	81,037	83,468	42,986	436,713
(13)	Department of Revenue	43,304	44,603	45,942	47,320	48,739	25,101	255,009
(14)	Attorney General's Office	118,805	41,576	42,823	44,108	45,431	23,397	316,140
(15)	PSTIF Board/Staff	200,762	204,777	208,873	213,050	217,311	110,829	1,155,602
(16)	Department of Natural Resources	1,367,559	1,340,207	1,313,403	1,287,135	1,261,393	618,082	7,187,779
(17)	Total Administrative Expenses	5,382,045	5,229,039	5,176,582	5,097,833	5,061,506	2,487,573	28,434,578
(18)	State Government Expenses	87,887	89,645	91,438	93,266	95,132	48,517	505,885
	Claim Payments Fiscal Year:	2016	2017	2018	2019	2020	2021 (1/2)	Totals
(19)	Average / Expected	10,650,074	10,219,561	10,494,091	10,392,797	10,437,964	5,271,536	57,466,024
(20)	Cash balance @ 6/30/15	63,947,875						
	Funds Available at Fiscal Year-End:	2016	2017	2018	2019	2020	2021 (1/2)	
(21)	Average / Expected	60,558,421	57,732,218	54,777,838	52,365,161	50,182,537	49,424,040	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

This chart shows projected revenues, projected expenses, projected claim payments, and projected cash available at year-end. For example, the actuarial central estimate is that \$10.7 million in losses will be paid in fiscal year 2016 in addition to \$5.4 million in administrative expenses and \$0.09 million in government expenses. Revenues are expected to total \$12.7 million, leaving a cash balance of \$60.6 million at fiscal year-end 2016. As of December 31, 2020, the actuarial central estimate suggests that there will be a remaining cash balance of approximately \$49.4 million.

Exhibit E-17 expands on this chart by showing claim payments and the resulting cash balances at various confidence levels. For example, there is a 95% probability that the cash balance as of December 31, 2020 will be greater than or equal to \$12.0 million. There is a 1% (= 100% - 99%) likelihood that the cash balance will be lower than \$(27.8) million.

Exhibit E-18 provides the total projected claim payments for future fiscal years. The first section of this exhibit displays future anticipated claim payments arising from currently reported claims (i.e., report years 2015 and prior). The second section displays claim payments arising from claims that will be reported in the future (report years 2015 and after). The third section displays the total of these two amounts.

Claim payments arising from current claims represent the payout of current case reserves and IBNR reserves for report years 2015 and prior. These payments decrease over time as claims are paid out and no additional claims are added, whereas claim payments arising from future report years (report years 2015 and subsequent) will increase over time. The claim payments arising from future report years are not included in the current estimate of unpaid losses as of June 30, 2015, as these claims have not yet been reported. The total claim payments at the bottom of Exhibit E-18 match the total claim payments displayed at the bottom of Exhibit E-17.

Large Loss Claims

Large loss claims are defined as claims that meet or exceed the level of \$250,000. T&M performed several analyses of large loss claims. These analyses included (1) calculation of the amount of time after a claim is reported for it be identified as “large,” (2) consideration of factors that increase the likelihood of a claim being a large claim, (3) consideration of reserving practices for large claims, and (4) consideration of the financial impact of large claims.

Using net incurred losses, T&M examined the current set of claims that have been identified as large. On average, these claims passed the \$250,000 incurred threshold between the 7th and 8th years after report. Specifically, the claims were identified as large on average at 88 months, which is just after the 7th year (84 months). The maximum lag time until determination was 240 months, and the shortest time was within the first 12 months in the historical data.

Compared to the prior year’s analysis, the average length of time until identification of a claim as “large” has increased 5.0%. This is the result of several older claims having been identified as “large” since the prior year’s analysis.

This length of time is not unexpected. Development on storage tank claims is slow as compared with many other insured lines of business. There can be a significant period of gathering more information, remediating, of testing and monitoring sites, of further remediation, of possibly re-opening claims, etc., which can lead to a long time period between the initial report of the claim and a determination of the ultimate liability.

Additionally, it is often the case that reserving is performed based on what is the “most likely” outcome (i.e., the mode of the distribution of potential reserves). As a result of this, initial reserves for any line

will tend to resemble the most common claims, with large claims identified only as information allows the adjuster to distinguish less common features of claims that might lead to a large claim.

The following chart shows claims currently identified as large as a percent of total reported claims by report year:

Missouri Petroleum Storage Tank Insurance Fund Large Claims as a Percent of Total Claims by Report Year As of June 30, 2015			
Report Year	Total Claims	Large Claims	Percent Large
1994	71	3	4%
1995	70	4	6%
1996	1,202	76	6%
1997	260	19	7%
1998	424	25	6%
1999	413	27	7%
2000	496	33	7%
2001	501	17	3%
2002	252	12	5%
2003	200	7	4%
2004	188	14	7%
2005	138	6	4%
2006	104	4	4%
2007	141	8	6%
2008	129	3	2%
2009	126	1	1%
2010	96	0	0%
2011	87	4	5%
2012	96	3	3%
2013	130	1	1%
2014	104	3	3%
2015	135	1	1%

This chart shows that the percentage of large loss claims per year seems to have declined somewhat in recent years. This may be a function of older claims having had more time to develop than newer claims.

In addition, the following breakdown shows the anticipated large losses and average lag time to identification of the claims as large by claim type:

Missouri Petroleum Storage Tank Insurance Fund Large Losses by Claim Type as of June 30, 2015				
Claim Type	Total Claims	Large Claims	Percent large	Avg. Lag
Insurance UST - Release	253	25	9.9%	59
Insurance UST - Closure	1,428	42	2.9%	76
Insurance UST - Other	538	43	8.0%	105
Remedial UST	2,519	119	4.7%	100
Insurance AST	240	31	12.9%	59
Remedial AST	266	11	4.1%	73
Incident Reports	122	0	0.0%	n/a
Total	5,366	271	5.1%	88

It appears based on this breakdown that tank closures and remedial sites are less likely, on average, to become large loss claims. One possible explanation for this observation is that for old spills to have gone undiscovered for a long time (e.g., in the case of remedial sites), it is less likely that the petroleum is near a water pathway such as a drinking well where it would be more easily detected. In addition, over a long period of time some of the petroleum products may have had a chance to naturally evaporate.

Similarly, closure claims are not releases discovered as a result of petroleum product vapors in the air, free product, or product in water pathways, but are instead releases that are discovered during tank closure. The way that these releases are discovered therefore implies that closure releases tend to be naturally less severe, because more severe releases are more easily detected before the tank is closed (and therefore coded as “release” or “other” claims).

Large losses account for approximately \$132.2 million in incurred losses, or approximately 42.4% of incurred losses, despite accounting for only 5.1% of claims. These values are slightly higher than those determined at the time of the previous analysis, and slightly above average compared to our professional experience.

This discrepancy seems to be mostly a result of changes in frequency of large losses rather than severity of large losses. The average incurred severity of large losses has only increased by 2.0% since the prior analysis, whereas the percent of total claims identified as large has increased approximately 5.2% over the same period. Further analysis may be needed to determine the impact of large claims over the long term, including what impact early identification of large claims may have on ultimate losses.

Recommendations

1. Further Analysis of Large Losses

Large losses, defined as those claims that exceed \$250,000 in losses, account for over 40% of all historical incurred losses, despite representing only 5.1% of claim counts. Early detection of claims that have high risk of becoming large losses may enable the PSTIF to direct more resources to these claims and potentially reduce the ultimate loss associated with such claims.

To this end, we recommend an expansion of the large loss study that was performed in this report. Further enhancements could yield valuable insights into the risk factors associated with petroleum spill sites. Such enhancements might include trending large loss limits over time, including site information such as tank construction or location of failure, considering the effect of future development on large losses, and analyzing emerging trends in large losses (such as whether new remedial claims are more or less likely on average to become large losses). These refinements may provide useful heuristic information that could help the PSTIF reduce liabilities with current and future large losses.

2. Review of Remedial Site Exposures

The PSTIF has compiled a list of sites at which there may be an exposure for future remedial claims. However, this list is known to contain inaccuracies, including thousands of potential duplicate listings.

We recommend that the PSTIF commence a review of remedial site exposures to eliminate duplicative entries and entries associated with sites that have become reported claims. This would aid in assessing the state of current remedial claim exposures and would assist in projecting the likelihood of remedial claims in the future.

Report Distribution and Use

This report has been prepared for internal use by the management of PSTIF, their accountants, auditors, and attorneys. This report may be reproduced only in its entirety. The Exhibits and Appendices are integral parts of this report. Other distribution or use of this report by the PSTIF management or related parties described above is not authorized without the prior written permission of Taylor & Mulder, Incorporated. The PSTIF is not authorized to include this report in any marketing or request for proposal solicitations. In addition, it should be understood that T&M consultants are available to respond to any questions by authorized third parties with respect to this report.

Conditions and Limitations

The analyses contained in this report were performed using accepted loss and loss adjustment expense reserving methods adjusted to the special needs of the PSTIF and in conformance with sound actuarial standards and principles. T&M introduced assumptions and judgments that we considered appropriate in the circumstances.

With regard to projections of ultimate values, it should be understood that the emergence and settlement of claims are subject to uncertainty. While we have used our best professional judgment in all instances, projections of future ultimate losses and loss expenses are inherently uncertain because of the random nature

of claims occurrences. They are also dependent upon future contingent events and are affected by many additional factors.

PSTIF claim reserving procedures and settlement philosophy, current and perceived social and economic inflation, current and future court and jury attitudes, legislative changes affecting the PSTIF, improvements in technology, and many other economic, legal, political, legislative and social factors all can have significant effects on ultimate claim costs. Therefore, we cannot warrant that actual developments will not differ from current projections. Such differences could be upward or downward and could be significant.

In summary, the ultimate loss and loss adjustment expense levels estimated in this report are subject to potential variations in estimation due to:

- (1) the fact that the ultimate liability of PSTIF is subject to the outcome of events yet to occur;
- (2) the unanticipated changes in the legal, economic, legislative or claims adjudication environments;
- (3) statistical fluctuation in losses around the estimated or expected values when all other factors remain constant; and
- (4) the fact that the actual future loss and loss payment and reporting patterns may differ from those applied in the determination of the expected losses or there may be unanticipated changes in the loss and expense loss and expense payment and reporting patterns;

Accordingly no assurance can be given that future loss emergence will not deviate from the estimated ultimate loss and loss adjustment expenses. However, the ultimate loss and loss adjustment expense estimates were based on a reasonable application of generally accepted actuarial procedures and techniques applied to the information available.

We reviewed the information for overall reasonableness and presented any irregularities to the PSTIF third-party administrator for edification and clarification.

T&M relied without audit or verification on historical loss, loss adjustment expense, exposure data, and other information provided by the PSTIF and its employees and brokers. T&M has relied upon the data provided and on the oral and/or written statements made regarding the quality, accuracy, and completeness of the data and information supplied. Any inaccuracies or inconsistencies in the data could have a significant effect on the conclusions drawn.

Should any inaccuracies be found in the data, T&M should be notified immediately so that the analysis can be adjusted accordingly.

With regard to projections of estimated revenues, it should be understood that the revenue streams are subject to uncertainty. While we have used our best professional judgment in all instances, projections of future revenues are inherently uncertain due to potential changes in technology, the implementation of environmental requirements, the introduction of alternative vehicle fuels, and changes in the economy among others. While T&M has used its best judgment in selecting trend values for each category of revenue, actual revenue collected is dependent upon unknown future events and may be affected by additional factors outside of PSTIF control.

T&M reflected anticipated investment income in the reserves assuming a 0.63% annual rate of return on investments. We did not independently verify the ability of the PSTIF to match this assumed rate.

The analysis in this report was limited to the loss and loss adjustment expense items noted in the scope of this project. This report does not include an examination of the assets of the PSTIF, nor did we form any opinion as to the value or validity of the assets. This report does not include a review or analysis of any income statement or other balance sheet items. This analysis with respect to loss and loss adjustment

expense reserves is based upon the assumption that all reserves are backed by valid assets and that these assets reflect suitably scheduled maturities and/or sufficient liquidity to meet cash flow requirements.

This report is limited in scope to the estimate of the level of reserve adequacy at the evaluation date of the report. It also includes projections regarding cash flow of the operations of the PSTIF under certain narrow assumptions and conditions.

This report was prepared for use by persons technically competent in insurance financial matters. Persons receiving this report should be made aware of the availability of T&M, Inc. personnel to answer questions and/or amplify on any matter addressed therein.

Actuarial Analysis

Sources of Data

Data was provided by Carol Eighmey with the PSTIF and Dorcee Lauen with Williams & Company Consulting, Inc., PSTIF's third-party administrator, in the form of several files. A full description of the names and contents of these files may be found as an appendix at the end of this report. In addition, we received additional information from interviews with PSTIF management and Williams' personnel, as well as from the PSTIF website, www.pstif.org.

It should be noted that there was a recent change in the way tank closures are coded. Previously, when a tank owner gave notice that a tank was being removed, it would be coded in the Williams & Company database as a claim, which would later be closed if no release was discovered. Now the notice of tank removal triggers an incident report in the database rather than a claim. The incident becomes listed as a claim if a release is later discovered at site. This will have the impact of slowing movement from "incident" to "claim" for UST Closure claims while simultaneously potentially speeding up claim closures once a release has been discovered.

In addition, there has been a recent significant effort to review suspended claims. This review led to (a) the closure of several claims as a result of overlap with other current claims and (b) the removal of several claims from suspense as a result of finding a party who is legally liable for (or otherwise willing to perform) remediation. Approximately 50 such claims were removed from the suspense list for the latter reason.

Overall Methodology

Selection of Factors

In each of the methods described below, our selections of development factors were based on the evaluation of the predictive value of the various historical averages and the perceived presence or absence of trends and singularities. Apparent statistical aberrations were eliminated either judgmentally or by selecting a longer experience period to increase the credibility of the experience, whichever we believed more appropriate in the particular circumstances.

Paid Development Method

The paid development method uses historical loss payment patterns to project actual payments as of a given valuation date to ultimate. The PSTIF's historical payment patterns or the fitted loss development factors were relied upon in selecting the expected payment patterns at each evaluation. The difference between the projected ultimate losses and the losses and allocated loss adjustment expenses paid through the evaluation date is the estimated reserve as of the evaluation date.

Estimates produced using the paid development method are not affected by changes in the case reserve position of the PSTIF which might have occurred during the review period, but may be understated since they ignore large unpaid claims. Also, this method may be susceptible to any changes in case settlement philosophy and/or speed of payment.

Incurred Development Method

The incurred, or reported, development method is similar to the paid development method and uses historical reporting patterns to project actual reported amounts (excluding IBNR) as of a given

evaluation date to ultimate. The difference between the projected ultimate losses and the losses paid through the evaluation date is the estimated reserve as of the evaluation date.

In many situations, the incurred development method is preferred over the paid method since large open but unpaid claims are considered. This method is more responsive to changes in the external business environment, since changes in liability laws, legislative changes affecting the PSTIF, court decisions and other external factors are generally reflected in the case reserves as soon as claims management becomes aware of them. As a result, the incurred loss development factors at each stage of development tend to be lower, and more stable, than those of the corresponding paid development method. However, the incurred development method may be affected by changes in case reserving practices over time and, to a lesser extent, also may be affected by changes in claims settlement rates.

Bornhuetter-Ferguson Methods

Loss development methods may be affected by changes in the reporting and payment of claims. Random fluctuations in the reporting and payment of claims (such as may result from a single unusually large claim) are magnified by the development factors, potentially resulting in biased estimates and wide changes in the estimates from one evaluation to the next. To minimize such fluctuations, we applied the Bornhuetter-Ferguson method to incurred losses and to paid losses. The Bornhuetter-Ferguson method is particularly suited for projecting loss reserves for longer-tailed business with volatile or limited development patterns. The Bornhuetter-Ferguson method represents a compromise between traditional loss development methods such as the incurred and paid loss development methods and an expected loss ratio method.

For the incurred Bornhuetter-Ferguson method, initial expected losses are established for each accident year to be consistent with projected pure premium amounts, i.e. projected losses divided by an exposure

base (in this case, insured tanks in-force for insurance claims or remaining potential remediation sites for remedial claims). These initial expected losses are then split into two components: expected reported losses and expected unreported losses. The expected unreported losses, which comprise the IBNR and bulk reserves for each accident year, are calculated as a function of the earned premium, the initial expected loss ratio, and the expected portion of ultimate losses that remains unreported or unreserved as of the evaluation date.

For the paid Bornhuetter-Ferguson method, initial expected losses are also derived from projected pure premium amounts. These initial expected losses are then split into two components: expected paid losses and expected unpaid losses. The expected unpaid losses, which comprise the IBNR and case reserves for each accident year, are calculated as a function of the initial expected loss ratio, the initial expected ultimate losses, and the expected portion of ultimate losses that remains unpaid as of the evaluation date.

Projection Methodologies for Cash Flow Analysis

Several overlapping projection methodologies were used to perform the cash flow analysis. First, regression techniques were used to project claim frequency and severity into future periods. These projections were then converted into parameters for a simulation model.

The simulation model used a Poisson distribution to predict the number of claims of each category for each report year. For each predicted claim, a lognormal distribution was then generated as the prediction of the ultimate size of that claim. For example, one trial of the simulation might predict that there would be 10 UST Insurance (Release) claims in a given report year. Each of those 10 claims would have a simulated claim size drawn from the lognormal distribution.

Repeating this process 10,000 times for each claim type and for each report year from 2016 to 2020, we obtained a set of potential ultimate losses that represent a probability distribution of outcomes, where more common answers represent more likely outcomes.

Historical losses were simulated using incurred loss development triangles. For each triangle, the loss development factors were simulated using normal distributions for each development period. The mean for each development period was selected to be the actuarial central estimate, while the standard deviation was selected to be the standard deviation of the historical LDFs.

For both historical and future claims, anticipated future payments by fiscal year were determined by applying fixed projected payment patterns to unpaid losses to determine the anticipated timing of future payments.

Combining these projections, we obtained an estimate of the range of possibilities for loss payments over time. We compared these loss payment projections to revenue projections to obtain an estimate of the range of possible outcomes for cash flows over time.

Methodology by Claim Type

Long-tailed lines of business have some important properties. These are lines of business for which claim payments can extend over a very long period (10 years or more) before closure. As claim payments are made over a long time horizon, the first few years after a claim is reported may have little or no actual claim payments. This produces relatively low paid losses at early maturities, and as a result, payment patterns can be strongly affected by small random fluctuations in payments from year to year.

The long payment pattern has a substantial effect on most categories of PSTIF claims. Paid losses at early maturities have shown extreme volatility, and as a result, paid losses have very low credibility (i.e., statistical stability) for some categories of claims.

By contrast, incurred losses have shown greater stability. When a claim is reported to the PSTIF, a reserve is established based on the expected ultimate loss for the claim. As the claim matures and losses are paid out, the incurred loss may be increased or decreased commensurate with the adjuster's interpretation of the ultimate value of the claim. In this case, the first estimate by the adjusters is close enough to the ultimate loss that development is low when compared to paid losses. Because development patterns for incurred losses were more stable over time, incurred loss development methods received greater relative weight in our analysis.

Incurred loss development, by contrast, is stable. Incurred losses do not undergo the same extreme changes as paid losses, making estimates from incurred losses more credible. In some cases, incurred loss development is modestly negative, implying that early reserve estimates are slightly over-stated. However, these trends seem to reverse at later maturities, returning incurred losses on average to slightly higher than the initial reserves as of 12 months.

When relatively little credibility could be placed in the loss development patterns observed in paid or incurred losses, higher reliance was placed on the Bornhuetter-Ferguson methods. These methods produce estimates that are not as significantly influenced by random variations in claim payout or reporting speeds, but are highly stable from year to year and are a reflection of the overall level of exposure.

Selections of Ultimate Losses

Generally, the selection of ultimate losses was based on selecting incurred loss development method for older years, as this method seemed to give the best result. In years where there was great variability, particularly more recent report years, we selected a combination of methods (including the Bornhuetter-Ferguson method) to provide greater stability in results.

Any exceptions to the above description were based on our review of the methods combined with our knowledge of specific accident years and other considerations as described in the background section of our report.

Loss Reserve Discounting

T&M reflected anticipated investment income on reserves using an assumed discount rate of 0.63%. This rate was based on historical yields by the State as of June 30, 2015. We did not independently verify the ability of the PSTIF to match these rates at June 30, 2015.

The undiscounted reserves and the discounted reserves are shown in the summary section of our report. The future payout of the undiscounted recommended reserve from 2016 to 2024 separately and for years subsequent to fiscal year 2024 on a combined basis is also provided in this section.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
Executive Summary - Unpaid Losses & LAE

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Case		Unpaid	Undiscounted		Discounted
<u>Claim Type</u>	<u>Reserve</u>	<u>IBNR</u>	<u>ALAE</u>	<u>Unpaid</u> <u>Loss & ALAE</u>	<u>Discount</u>	<u>Unpaid</u> <u>Loss & ALAE</u>
Insurance UST - Release	7,074,609	3,558,709	29,650	10,662,968	491,225	10,171,743
Insurance UST - Closure	11,001,715	4,315,660	41,017	15,358,393	675,622	14,682,771
Insurance UST - Other	8,760,681	9,180,780	56,664	17,998,124	778,155	17,219,969
Remedial UST	23,193,279	4,478,012	67,166	27,738,457	1,074,214	26,664,244
Insurance AST	7,421,228	2,627,803	26,484	10,075,516	316,376	9,759,139
Remedial AST	3,602,145	188,341	8,313	3,798,799	145,643	3,653,156
Total	61,053,657	24,349,306	229,294	85,632,256	3,481,234	82,151,022

Notes:

Col (5) = (2) + (3) + (4)

Col (7) = (5) - (6)

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(7)
RY	PAID LDM <u>ULTIMATE</u>	INC LDM <u>ULTIMATE</u>	PAID BF <u>ULTIMATE</u>	INC BF <u>ULTIMATE</u>	SELECTED <u>ULTIMATE</u>
1994	4,222,132	4,253,300	-	-	4,253,300
1995	4,408,468	4,208,946	-	-	4,208,946
1996	73,818,733	73,738,263	-	-	73,738,263
1997	19,919,767	19,144,548	-	-	19,144,548
1998	29,412,929	29,038,165	-	-	29,038,165
1999	25,885,491	25,706,487	-	-	25,706,487
2000	32,793,346	32,839,778	-	-	32,839,778
2001	14,793,745	14,828,936	-	-	14,828,936
2002	15,917,707	15,717,078	-	-	15,717,078
2003	12,187,408	12,005,364	-	-	12,005,364
2004	16,156,589	15,101,779	-	-	15,101,779
2005	10,678,230	10,315,814	-	-	10,315,814
2006	6,855,763	7,078,006	-	-	7,078,006
2007	12,061,465	10,160,169	-	-	10,155,051
2008	10,066,000	8,401,352	9,091,137	8,146,973	8,330,294
2009	8,344,011	7,024,803	8,094,092	7,008,471	7,071,175
2010	4,365,927	4,499,675	6,251,591	5,044,303	4,716,761
2011	10,863,751	9,444,511	9,196,442	8,713,691	9,046,073
2012	9,395,701	8,465,361	9,029,913	8,444,340	8,774,410
2013	7,241,378	7,758,829	8,374,765	7,940,992	8,307,524
2014	9,866,369	8,190,874	8,650,400	8,302,458	8,603,759
2015	4,136,413	5,786,319	8,024,481	5,593,954	6,809,217
TOTAL	343,391,323	333,708,358	66,712,821	59,195,182	335,790,731

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<u>RY</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>	<u>PAID</u> <u>ALAE</u>	<u>UNPAID</u> <u>ALAE</u>	<u>ULTIMATE</u> <u>ALAE</u>	<u>ULTIMATE</u> <u>LOSS & ALAE</u>	<u>UNPAID</u> <u>LOSS & ALAE</u>
1994	4,253,300	3,646,390	4,222,132	575,741	31,168	606,910	6,250	1,333	7,583	4,260,883	608,243
1995	4,208,946	4,102,367	4,171,445	69,078	37,500	106,578	9,365	301	9,666	4,218,612	106,880
1996	73,738,263	63,777,519	73,695,840	9,918,321	42,423	9,960,744	121,983	20,899	142,882	73,881,145	9,981,642
1997	19,144,548	17,402,932	19,039,910	1,636,978	104,638	1,741,616	40,217	3,857	44,074	19,188,622	1,745,473
1998	29,038,165	25,230,191	28,899,662	3,669,471	138,503	3,807,975	75,448	8,245	83,693	29,121,858	3,816,220
1999	25,706,487	22,292,418	25,057,652	2,765,235	648,834	3,414,069	73,136	8,488	81,624	25,788,110	3,422,557
2000	32,839,778	25,706,828	32,032,264	6,325,436	807,514	7,132,949	74,912	16,589	91,501	32,931,279	7,149,539
2001	14,828,936	11,390,911	14,530,457	3,139,545	298,480	3,438,025	47,209	7,806	55,015	14,883,952	3,445,832
2002	15,717,078	11,861,642	14,842,055	2,980,412	875,023	3,855,436	41,914	9,883	51,797	15,768,875	3,865,319
2003	12,005,364	8,947,175	11,340,067	2,392,892	665,297	3,058,189	50,307	7,779	58,086	12,063,449	3,065,968
2004	15,101,779	11,675,944	14,058,679	2,382,735	1,043,100	3,425,835	131,794	9,336	141,130	15,242,910	3,435,172
2005	10,315,814	7,286,829	9,484,238	2,197,409	831,576	3,028,986	104,903	8,065	112,969	10,428,783	3,037,051
2006	7,078,006	4,449,394	6,361,759	1,912,365	716,248	2,628,612	43,267	6,988	50,255	7,128,262	2,635,600
2007	10,155,051	7,566,465	9,283,942	1,717,477	871,108	2,588,585	95,525	7,228	102,753	10,257,804	2,595,813
2008	8,330,294	5,741,379	7,211,293	1,469,914	1,119,001	2,588,915	34,193	7,747	41,939	8,372,234	2,596,662
2009	7,071,175	4,412,758	5,915,889	1,503,131	1,155,286	2,658,417	27,559	7,968	35,526	7,106,702	2,666,385
2010	4,716,761	2,243,433	3,762,874	1,519,441	953,887	2,473,329	23,235	7,160	30,395	4,747,156	2,480,489
2011	9,046,073	4,457,972	7,141,631	2,683,659	1,904,442	4,588,102	25,443	13,564	39,007	9,085,081	4,601,666
2012	8,774,410	3,618,110	6,575,041	2,956,931	2,199,369	5,156,301	24,699	15,367	40,066	8,814,476	5,171,668
2013	8,307,524	2,425,310	5,626,670	3,201,360	2,680,854	5,882,214	20,985	17,890	38,875	8,346,399	5,900,104
2014	8,603,759	1,929,157	5,590,714	3,661,557	3,013,045	6,674,603	18,644	20,239	38,884	8,642,643	6,694,842
2015	6,809,217	222,644	2,597,211	2,374,567	4,212,006	6,586,573	6,895	22,560	29,455	6,838,673	6,609,134
TOTAL	335,790,731	250,387,768	311,441,425	61,053,657	24,349,306	85,402,962	1,097,882	229,294	1,327,176	337,117,906	85,632,256

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID BF</u> <u>ULTIMATE</u>	<u>INC BF</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>
1994	229,333	229,333	-	-	229,333
1995	241,953	241,953	-	-	241,953
1996	1,366,007	1,366,007	-	-	1,366,007
1997	2,275,923	2,135,701	-	-	2,135,701
1998	1,423,519	1,358,000	-	-	1,358,000
1999	142,573	142,573	-	-	142,573
2000	2,133,481	2,138,029	-	-	2,138,029
2001	1,138,722	1,081,607	-	-	1,081,607
2002	791,333	708,091	-	-	708,091
2003	2,010,726	2,032,256	-	-	2,032,256
2004	1,199,204	1,222,469	-	-	1,222,469
2005	941,848	960,329	-	-	960,329
2006	213,084	219,157	-	-	219,157
2007	3,438,670	2,568,108	-	-	2,568,108
2008	2,833,579	1,843,562	2,252,259	1,744,003	1,793,782
2009	1,472,749	1,446,292	1,596,997	1,339,729	1,393,010
2010	438,745	427,743	1,184,530	442,039	436,175
2011	4,074,063	2,625,785	2,565,450	2,118,470	2,372,127
2012	1,259,467	1,008,534	1,623,816	942,988	1,283,402
2013	373,434	285,167	1,465,961	538,229	1,002,095
2014	4,285,638	2,060,878	2,230,204	1,761,127	1,995,665
2015	2,323,431	1,798,637	1,845,770	1,432,509	1,639,140
TOTAL	34,607,481	27,900,209	14,764,987	10,319,093	28,319,011

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>
1994	229,333	194,724	229,333	34,609	-	34,609
1995	241,953	241,953	241,953	-	-	-
1996	1,366,007	1,068,112	1,366,007	297,895	-	297,895
1997	2,135,701	1,972,764	2,135,701	162,936	-	162,936
1998	1,358,000	1,226,074	1,358,000	131,926	-	131,926
1999	142,573	142,573	142,573	-	-	-
2000	2,138,029	1,649,008	2,133,481	484,473	4,549	489,022
2001	1,081,607	912,396	1,071,788	159,392	9,819	169,211
2002	708,091	607,282	700,590	93,307	7,502	100,809
2003	2,032,256	1,435,580	2,010,726	575,147	21,530	596,677
2004	1,222,469	707,282	1,199,204	491,923	23,265	515,188
2005	960,329	566,691	941,848	375,158	18,481	393,638
2006	219,157	97,281	213,084	115,803	6,073	121,876
2007	2,568,108	1,858,776	2,424,277	565,501	143,831	709,332
2008	1,793,782	1,417,026	1,711,851	294,825	81,931	376,756
2009	1,393,010	676,540	1,292,547	616,008	100,463	716,470
2010	436,175	181,398	346,255	164,857	89,920	254,778
2011	2,372,127	1,435,417	1,993,817	558,400	378,310	936,711
2012	1,283,402	369,814	754,272	384,458	529,130	913,587
2013	1,002,095	87,594	195,174	107,580	806,921	914,501
2014	1,995,665	719,825	1,324,230	604,405	671,436	1,275,841
2015	1,639,140	117,585	973,592	856,007	665,548	1,521,555
TOTAL	28,319,011	17,685,693	24,760,302	7,074,609	3,558,709	10,633,318

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(7)
RY	PAID LDM <u>ULTIMATE</u>	INC LDM <u>ULTIMATE</u>	PAID BF <u>ULTIMATE</u>	INC BF <u>ULTIMATE</u>	SELECTED <u>ULTIMATE</u>
1994	875,960	875,960	-	-	875,960
1995	830,629	830,629	-	-	830,629
1996	4,010,489	3,887,596	-	-	3,887,596
1997	4,696,769	4,696,769	-	-	4,696,769
1998	5,031,853	5,048,510	-	-	5,048,510
1999	10,135,116	10,409,578	-	-	10,409,578
2000	5,777,830	5,675,688	-	-	5,675,688
2001	2,361,312	2,257,869	-	-	2,257,869
2002	4,870,848	4,500,954	-	-	4,500,954
2003	3,543,392	3,188,036	-	-	3,188,036
2004	2,547,565	2,377,966	-	-	2,377,966
2005	2,587,234	2,469,424	-	-	2,469,424
2006	1,622,619	1,554,457	-	-	1,554,457
2007	4,026,601	3,664,177	-	-	3,664,177
2008	3,006,073	2,777,486	2,945,503	2,779,950	2,778,718
2009	2,571,906	2,076,757	2,628,981	2,142,119	2,109,438
2010	1,949,686	1,915,731	2,204,259	1,991,345	1,953,538
2011	1,959,584	1,625,351	2,217,450	1,740,021	1,682,686
2012	2,735,440	3,168,188	2,564,979	3,082,471	2,887,769
2013	2,918,959	3,439,919	2,618,592	3,294,015	3,067,871
2014	2,692,555	2,754,655	2,498,380	2,692,783	2,659,593
2015	470,582	468,057	2,099,334	799,916	1,449,625
TOTAL	71,223,002	69,663,758	19,777,478	18,522,620	70,026,853

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS
1994	875,960	722,650	875,960	153,310	-	153,310
1995	830,629	830,629	830,629	-	-	-
1996	3,887,596	3,703,617	3,887,596	183,980	-	183,980
1997	4,696,769	4,222,873	4,696,769	473,896	-	473,896
1998	5,048,510	4,527,913	5,014,309	486,396	34,200	520,597
1999	10,409,578	8,858,161	10,135,116	1,276,955	274,462	1,551,417
2000	5,675,688	4,988,988	5,511,724	522,736	163,964	686,700
2001	2,257,869	1,983,119	2,164,958	181,840	92,911	274,750
2002	4,500,954	4,004,981	4,303,344	298,362	197,611	495,973
2003	3,188,036	2,871,359	3,049,245	177,885	138,791	316,677
2004	2,377,966	1,994,768	2,244,931	250,163	133,035	383,198
2005	2,469,424	1,971,656	2,309,022	337,366	160,402	497,768
2006	1,554,457	1,207,387	1,440,812	233,424	113,645	347,069
2007	3,664,177	2,935,041	3,387,988	452,947	276,189	729,137
2008	2,778,718	2,105,246	2,518,897	413,652	259,821	673,473
2009	2,109,438	1,727,791	1,873,872	146,080	235,566	381,647
2010	1,953,538	1,241,412	1,718,575	477,162	234,964	712,126
2011	1,682,686	1,168,623	1,433,817	265,194	248,869	514,063
2012	2,887,769	1,389,447	2,735,440	1,345,993	152,330	1,498,323
2013	3,067,871	1,288,052	2,918,959	1,630,907	148,912	1,779,819
2014	2,659,593	911,475	2,275,421	1,363,946	384,172	1,748,118
2015	1,449,625	54,289	383,808	329,519	1,065,817	1,395,336
TOTAL	70,026,853	54,709,477	65,711,192	11,001,715	4,315,660	15,317,375

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID BF</u> <u>ULTIMATE</u>	<u>INC BF</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>
1994	3,116,839	3,148,007	-	-	3,148,007
1995	3,115,033	2,915,511	-	-	2,915,511
1996	2,344,436	2,386,859	-	-	2,386,859
1997	4,106,236	3,805,225	-	-	3,805,225
1998	2,857,819	2,956,627	-	-	2,956,627
1999	3,247,875	2,928,412	-	-	2,928,412
2000	4,267,638	4,031,726	-	-	4,031,726
2001	1,069,609	1,164,096	-	-	1,164,096
2002	4,537,251	4,587,161	-	-	4,587,161
2003	3,407,365	3,583,387	-	-	3,583,387
2004	5,696,010	4,961,432	-	-	4,961,432
2005	2,409,948	2,087,797	-	-	2,087,797
2006	2,659,248	2,911,014	-	-	2,911,014
2007	1,453,181	1,120,176	-	-	1,120,176
2008	2,479,482	2,316,320	1,880,093	2,062,875	2,189,597
2009	2,088,641	1,412,653	1,676,460	1,405,735	1,409,194
2010	500,096	347,280	1,078,941	730,293	538,786
2011	1,555,180	1,926,536	1,463,496	1,723,852	1,825,194
2012	1,461,179	1,075,344	1,453,625	1,256,813	1,166,079
2013	979,901	1,466,329	1,387,988	1,470,101	1,468,215
2014	400,948	962,873	1,364,923	1,310,972	1,337,948
2015	680,256	2,441,006	1,470,339	1,714,266	1,592,302
TOTAL	54,434,173	54,535,771	11,775,866	11,674,907	54,114,745

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS
1994	3,148,007	2,729,017	3,116,839	387,822	31,168	418,991
1995	2,915,511	2,808,933	2,878,011	69,078	37,500	106,578
1996	2,386,859	1,979,584	2,344,436	364,852	42,423	407,274
1997	3,805,225	3,532,892	3,700,587	167,696	104,638	272,334
1998	2,956,627	2,204,678	2,857,819	653,142	98,807	751,949
1999	2,928,412	2,618,422	2,758,547	140,124	169,865	309,989
2000	4,031,726	3,344,627	3,772,662	428,035	259,064	687,100
2001	1,164,096	779,324	1,069,609	290,285	94,486	384,771
2002	4,587,161	3,249,469	4,119,846	870,377	467,314	1,337,691
2003	3,583,387	2,315,479	3,124,593	809,115	458,793	1,267,908
2004	4,961,432	3,673,274	4,200,197	526,923	761,235	1,288,158
2005	2,087,797	1,487,208	1,736,223	249,015	351,574	600,589
2006	2,911,014	1,509,703	2,347,051	837,348	563,963	1,401,311
2007	1,120,176	744,229	867,453	123,224	252,723	375,947
2008	2,189,597	1,146,107	1,699,293	553,187	490,304	1,043,491
2009	1,409,194	854,383	958,396	104,014	450,798	554,811
2010	538,786	177,574	220,645	43,071	318,141	361,212
2011	1,825,194	450,244	1,146,204	695,960	678,990	1,374,950
2012	1,166,079	340,184	556,332	216,148	609,746	825,895
2013	1,468,215	168,015	561,139	393,125	907,076	1,300,201
2014	1,337,948	44,273	320,413	276,140	1,017,534	1,293,675
2015	1,592,302	15,667	577,668	562,001	1,014,635	1,576,636
TOTAL	54,114,745	36,173,284	44,933,965	8,760,681	9,180,780	17,941,460

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID BF</u> <u>ULTIMATE</u>	<u>INC BF</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>
1994	-	-	-	-	-
1995	114,027	114,027	-	-	114,027
1996	65,977,885	65,977,885	-	-	65,977,885
1997	8,840,840	8,506,853	-	-	8,506,853
1998	18,986,604	18,561,896	-	-	18,561,896
1999	8,248,515	8,163,003	-	-	8,163,003
2000	14,208,531	14,588,469	-	-	14,588,469
2001	2,580,388	2,681,652	-	-	2,681,652
2002	3,114,120	3,324,040	-	-	3,324,040
2003	1,121,173	1,210,436	-	-	1,210,436
2004	1,890,243	1,952,430	-	-	1,952,430
2005	2,744,820	3,081,635	-	-	3,081,635
2006	450,938	513,609	-	-	513,609
2007	1,459,801	1,523,132	-	-	1,523,132
2008	949,030	783,888	1,039,489	844,955	889,444
2009	1,055,946	984,054	1,115,971	1,023,404	1,041,143
2010	889,689	1,148,794	969,590	1,163,401	1,093,928
2011	1,837,311	2,184,267	1,481,046	1,969,940	1,878,418
2012	704,084	626,077	1,088,980	768,259	796,850
2013	1,271,645	1,127,917	1,276,809	1,161,924	1,209,574
2014	1,654,109	1,111,142	1,354,170	1,157,807	1,319,307
2015	247,003	340,521	1,288,740	610,856	949,798
TOTAL	138,346,703	138,505,728	9,614,794	8,700,547	139,377,530

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	65,977,885	56,923,526	65,977,885	9,054,360	-	9,054,360
1997	8,506,853	7,674,403	8,506,853	832,451	-	832,451
1998	18,561,896	16,158,393	18,556,400	2,398,007	5,496	2,403,503
1999	8,163,003	6,893,063	7,958,496	1,065,433	204,507	1,269,941
2000	14,588,469	11,608,205	14,208,531	2,600,326	379,937	2,980,264
2001	2,681,652	1,904,981	2,580,388	675,407	101,264	776,671
2002	3,324,040	2,204,070	3,114,120	910,051	209,920	1,119,971
2003	1,210,436	784,155	1,121,173	337,018	89,263	426,282
2004	1,952,430	1,384,142	1,770,349	386,207	182,082	568,289
2005	3,081,635	1,773,966	2,744,820	970,854	336,815	1,307,669
2006	513,609	300,938	450,938	150,000	62,671	212,671
2007	1,523,132	916,913	1,312,571	395,658	210,561	606,219
2008	889,444	562,296	660,233	97,937	229,211	327,148
2009	1,041,143	592,613	798,503	205,889	242,640	448,530
2010	1,093,928	353,987	889,689	535,702	204,239	739,941
2011	1,878,418	752,341	1,691,617	939,276	186,801	1,126,077
2012	796,850	213,486	484,868	271,382	311,982	583,364
2013	1,209,574	340,269	873,521	533,252	336,053	869,305
2014	1,319,307	250,466	837,531	587,065	481,776	1,068,841
2015	949,798	-	247,003	247,003	702,795	949,798
TOTAL	139,377,530	111,706,239	134,899,517	23,193,279	4,478,012	27,671,291

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Summary of Ultimate Losses

(1) RY	(2) PAID LDM <u>ULTIMATE</u>	(3) INC LDM <u>ULTIMATE</u>	(4) PAID BF <u>ULTIMATE</u>	(5) INC BF <u>ULTIMATE</u>	(7) SELECTED <u>ULTIMATE</u>
1994	-	-	-	-	-
1995	-	-	-	-	-
1996	-	-	-	-	-
1997	-	-	-	-	-
1998	478,042	478,042	-	-	478,042
1999	2,689,230	2,689,230	-	-	2,689,230
2000	1,195,793	1,195,793	-	-	1,195,793
2001	6,227,944	6,227,944	-	-	6,227,944
2002	2,167,740	2,160,416	-	-	2,160,416
2003	1,552,847	1,509,766	-	-	1,509,766
2004	2,918,873	2,844,310	-	-	2,844,310
2005	1,914,542	1,636,421	-	-	1,636,421
2006	1,909,874	1,879,770	-	-	1,879,770
2007	1,641,461	1,232,589	-	-	1,232,589
2008	746,049	615,611	897,589	655,102	615,611
2009	849,952	927,457	945,426	946,415	927,457
2010	587,710	660,127	783,034	708,615	684,371
2011	1,437,613	1,082,571	1,436,938	1,150,026	1,276,787
2012	3,235,531	2,587,218	2,264,496	2,381,657	2,617,225
2013	1,697,440	1,439,498	1,589,079	1,464,327	1,547,586
2014	833,119	1,301,326	1,160,802	1,361,712	1,261,257
2015	415,140	738,095	1,274,743	1,007,752	1,141,248
TOTAL	32,498,899	31,206,183	10,352,107	9,675,605	31,925,822

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,529,597	2,689,230	159,632	-	159,632
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,227,944	5,018,242	6,227,944	1,209,702	-	1,209,702
2002	2,160,416	1,556,347	2,167,740	611,393	(7,324)	604,069
2003	1,509,766	1,100,227	1,552,847	452,620	(43,081)	409,539
2004	2,844,310	2,443,349	2,900,827	457,478	(56,517)	400,961
2005	1,636,421	1,407,470	1,672,486	265,016	(36,066)	228,951
2006	1,879,770	1,334,084	1,909,874	575,790	(30,104)	545,686
2007	1,232,589	1,069,756	1,249,903	180,147	(17,315)	162,832
2008	615,611	458,918	569,232	110,314	46,379	156,693
2009	927,457	459,776	849,952	390,176	77,505	467,681
2010	684,371	289,061	587,710	298,649	96,661	395,310
2011	1,276,787	651,347	876,176	224,830	400,611	625,440
2012	2,617,225	1,305,178	2,044,128	738,950	573,097	1,312,047
2013	1,547,586	541,380	1,077,876	536,496	469,710	1,006,206
2014	1,261,257	3,119	833,119	830,000	428,138	1,258,138
2015	1,141,248	35,104	415,140	380,036	726,108	1,106,144
TOTAL	31,925,822	21,876,791	29,298,019	7,421,228	2,627,803	10,049,031

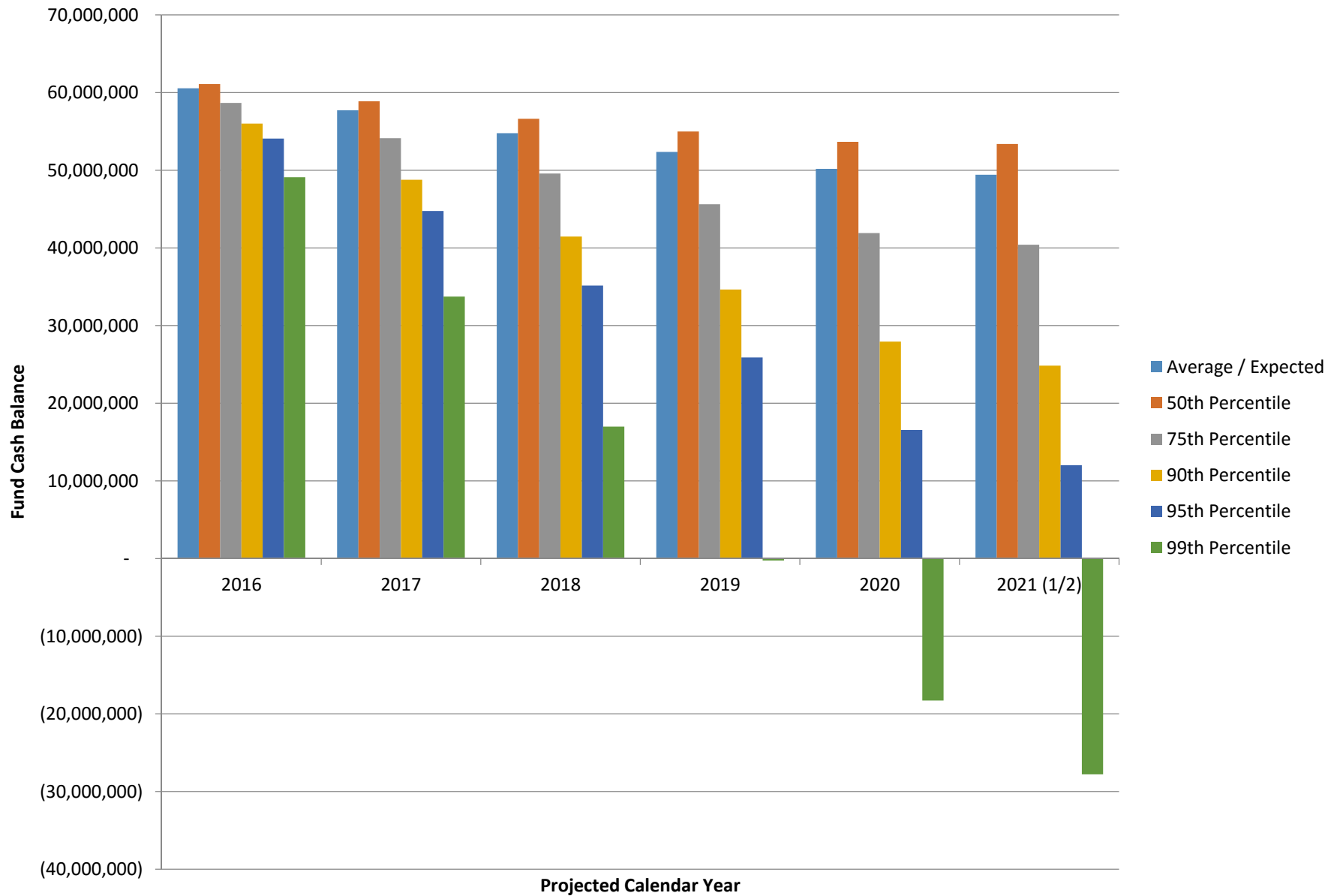
Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID BF</u> <u>ULTIMATE</u>	<u>INC BF</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>
1994	-	-	-	-	-
1995	106,826	106,826	-	-	106,826
1996	119,916	119,916	-	-	119,916
1997	-	-	-	-	-
1998	635,092	635,092	-	-	635,092
1999	1,422,182	1,373,691	-	-	1,373,691
2000	5,210,072	5,210,072	-	-	5,210,072
2001	1,415,769	1,415,769	-	-	1,415,769
2002	436,415	436,415	-	-	436,415
2003	551,906	481,483	-	-	481,483
2004	1,904,695	1,743,171	-	-	1,743,171
2005	79,838	80,208	-	-	80,208
2006	-	-	-	-	-
2007	41,750	51,987	-	-	46,869
2008	51,787	64,485	76,205	60,088	63,141
2009	304,818	177,590	130,256	151,069	190,933
2010	-	-	31,237	8,611	9,962
2011	-	-	32,063	11,382	10,861
2012	-	-	34,017	12,152	23,085
2013	-	-	36,336	12,395	12,183
2014	-	-	41,920	18,058	29,989
2015	1	2	45,554	28,655	37,105
TOTAL	12,281,065	11,896,708	427,588	302,411	12,026,771

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Summary of Case & IBNR Reserves

(1) RY	(2) SELECTED <u>ULTIMATE</u>	(3) PAID <u>LOSS</u>	(4) INCURRED <u>LOSS</u>	(5) CASE <u>RESERVE</u>	(6) IBNR <u>RESERVE</u>	(7) UNPAID <u>LOSS</u>
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	119,916	102,681	119,916	17,235	-	17,235
1997	-	-	-	-	-	-
1998	635,092	635,092	635,092	-	-	-
1999	1,373,691	1,250,602	1,373,691	123,089	-	123,089
2000	5,210,072	2,920,207	5,210,072	2,289,865	-	2,289,865
2001	1,415,769	792,848	1,415,769	622,920	-	622,920
2002	436,415	239,493	436,415	196,922	-	196,922
2003	481,483	440,376	481,483	41,107	-	41,107
2004	1,743,171	1,473,129	1,743,171	270,042	-	270,042
2005	80,208	79,838	79,838	-	371	371
2006	-	-	-	-	-	-
2007	46,869	41,750	41,750	-	5,119	5,119
2008	63,141	51,787	51,787	-	11,354	11,354
2009	190,933	101,655	142,619	40,965	48,314	89,279
2010	9,962	-	-	-	9,962	9,962
2011	10,861	-	-	-	10,861	10,861
2012	23,085	-	-	-	23,085	23,085
2013	12,183	-	-	-	12,183	12,183
2014	29,989	-	-	-	29,989	29,989
2015	37,105	-	1	1	37,104	37,105
TOTAL	12,026,771	8,236,284	11,838,429	3,602,145	188,341	3,790,487

Projected Cash Balance by Calendar Year at Confidence Levels



Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
Financial Projections Based on PSTIF 2016 Projections

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(K)
	Annual Revenues Fiscal Year:	2016	2017	2018	2019	2020	2021 (1/2)	Totals
(1)	Transport load fees	11,100,000	11,050,000	11,000,000	10,950,000	10,900,000	5,425,000	60,425,000
(2)	100 Initial tank fees	20,000	20,000	20,000	20,000	20,000	10,000	110,000
(3)	UST participation fees	914,195	910,905	907,615	904,325	901,035	430,473	4,968,548
(4)	AST participation fees	357,890	366,290	366,290	366,290	366,290	174,745	1,997,795
(5)	Interest income	338,467	364,848	513,825	930,604	1,224,654	1,008,911	4,381,309
(6)	Total Revenues	12,730,552	12,712,043	12,807,730	13,171,219	13,411,979	7,049,129	71,882,652
	Administrative Expenses Fiscal Year:	2016	2017	2018	2019	2020	2021 (1/2)	Totals
(7)	Third Party Administrative Expenses	3,033,898	2,973,220	2,913,756	2,855,481	2,798,371	1,371,202	15,945,928
(8)	Section 319.107 Expenses	15,450	15,914	16,391	16,883	17,389	8,956	90,983
(9)	Inspections	368,637	379,696	391,087	402,820	414,905	207,453	2,164,598
(10)	Training & Loss Prevention Services	36,250	37,023	26,523	27,319	28,138	14,491	169,744
(11)	Other Professional Expenses	123,220	115,638	139,107	122,680	146,361	65,076	712,082
(12)	Legal Expenses	74,160	76,385	78,677	81,037	83,468	42,986	436,713
(13)	Department of Revenue	43,304	44,603	45,942	47,320	48,739	25,101	255,009
(14)	Attorney General's Office	118,805	41,576	42,823	44,108	45,431	23,397	316,140
(15)	PSTIF Board/Staff	200,762	204,777	208,873	213,050	217,311	110,829	1,155,602
(16)	Department of Natural Resources	1,367,559	1,340,207	1,313,403	1,287,135	1,261,393	618,082	7,187,779
(17)	Total Administrative Expenses	5,382,045	5,229,039	5,176,582	5,097,833	5,061,506	2,487,573	28,434,578
(18)	State Government Expenses	87,887	89,645	91,438	93,266	95,132	48,517	505,885
	Claim Payments Fiscal Year:	2016	2017	2018	2019	2020	2021 (1/2)	Totals
(19)	Average / Expected	10,650,074	10,219,561	10,494,091	10,392,797	10,437,964	5,271,536	57,466,024
(20)	50th Percentile Losses	10,112,247	9,603,691	9,794,602	9,616,699	9,587,766	4,793,558	53,508,564
(21)	75th Percentile Losses	12,538,965	11,933,103	12,094,781	11,929,929	11,967,899	6,017,150	66,481,827
(22)	90th Percentile Losses	15,203,530	14,617,299	14,860,240	14,790,118	14,967,599	7,610,534	82,049,320
(23)	95th Percentile Losses	17,127,660	16,719,654	17,143,321	17,242,910	17,586,755	9,037,049	94,857,348
(24)	99th Percentile Losses	22,102,690	22,765,833	24,278,470	25,223,927	26,278,188	14,021,810	134,670,918
(25)	Cash balance @ 6/30/15	63,947,875						
	Funds Available at Fiscal Year-End:	2016	2017	2018	2019	2020	2021 (1/2)	
(26)	Average / Expected	60,558,421	57,732,218	54,777,838	52,365,161	50,182,537	49,424,040	
(27)	50th Percentile	61,096,248	58,885,916	56,631,024	54,994,444	53,662,019	53,381,500	
(28)	75th Percentile	58,669,530	54,129,786	49,574,715	45,624,906	41,912,348	40,408,237	
(29)	90th Percentile	56,004,965	48,781,025	41,460,495	34,650,496	27,938,238	24,840,744	
(30)	95th Percentile	54,080,835	44,754,540	35,150,930	25,888,139	16,556,725	12,032,716	
(31)	99th Percentile	49,105,805	33,733,330	16,994,571	(249,237)	(18,272,084)	(27,780,854)	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

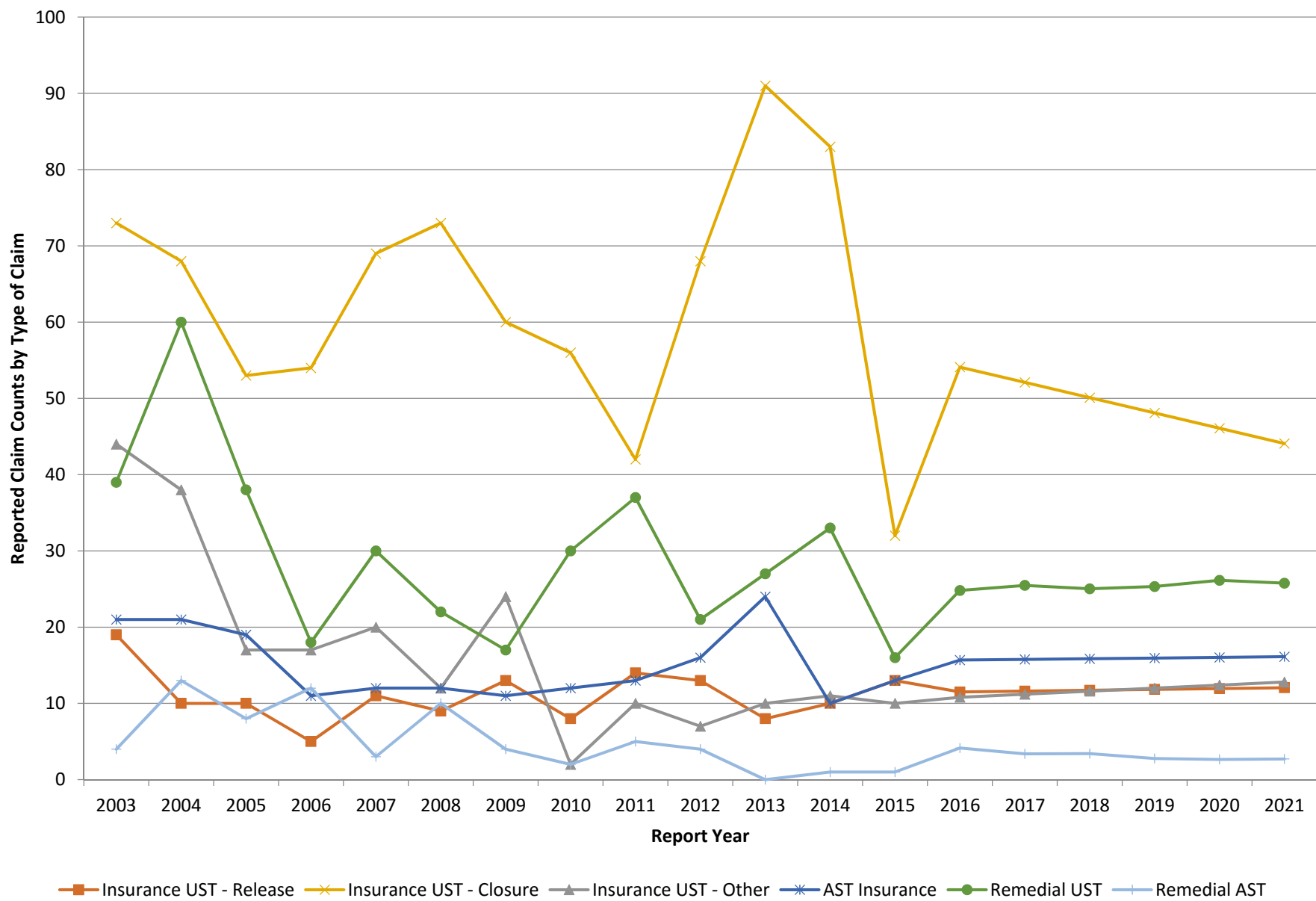
Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
Financial Projection Cash Flow Detail

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Claim Payments Arising from Current Reserves (Report Years 2015 and Prior)								
		2016	2017	2018	2019	2020	2021	Totals
(1)	50th Percentile Losses	9,628,366	8,024,960	7,483,367	6,782,867	6,227,856	5,665,853	43,813,269
(2)	75th Percentile Losses	11,883,807	9,845,903	9,023,433	8,159,468	7,495,558	6,794,070	53,202,240
(3)	90th Percentile Losses	14,279,020	11,769,007	10,635,854	9,596,785	8,820,518	7,968,584	63,069,769
(4)	95th Percentile Losses	15,912,172	13,071,383	11,716,040	10,556,463	9,705,189	8,749,201	69,710,448
(5)	99th Percentile Losses	19,689,211	16,049,906	14,145,628	12,701,458	11,684,162	10,483,891	84,754,256
(6)	Mean	10,055,937	8,354,559	7,741,630	7,007,556	6,436,037	5,845,133	45,440,851

Claim Payments Arising from Future Claims (Report Years 2016 and After)								
		2016	2017	2018	2019	2020	2021	Totals
(7)	50th Percentile Losses	483,882	1,578,731	2,311,235	2,833,832	3,359,910	3,921,264	14,488,852
(8)	75th Percentile Losses	655,158	2,087,200	3,071,348	3,770,461	4,472,341	5,240,229	19,296,737
(9)	90th Percentile Losses	924,510	2,848,292	4,224,386	5,193,334	6,147,080	7,252,483	26,590,085
(10)	95th Percentile Losses	1,215,488	3,648,271	5,427,281	6,686,447	7,881,566	9,324,896	34,183,949
(11)	99th Percentile Losses	2,413,479	6,715,927	10,132,842	12,522,469	14,594,026	17,559,729	63,938,472
(12)	Mean	594,138	1,865,002	2,752,461	3,385,241	4,001,928	4,697,940	17,296,709

Total Projected Claim Payments								
		2016	2017	2018	2019	2020	2021	Totals
(13)	50th Percentile Losses	10,112,247	9,603,691	9,794,602	9,616,699	9,587,766	9,587,116	58,302,122
(14)	75th Percentile Losses	12,538,965	11,933,103	12,094,781	11,929,929	11,967,899	12,034,300	72,498,977
(15)	90th Percentile Losses	15,203,530	14,617,299	14,860,240	14,790,118	14,967,599	15,221,067	89,659,854
(16)	95th Percentile Losses	17,127,660	16,719,654	17,143,321	17,242,910	17,586,755	18,074,097	103,894,397
(17)	99th Percentile Losses	22,102,690	22,765,833	24,278,470	25,223,927	26,278,188	28,043,620	148,692,728
(18)	Mean	10,650,074	10,219,561	10,494,091	10,392,797	10,437,964	10,543,072	62,737,560

Projected Reported Claim Counts by Claim Type



Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RY	UST POLS IN FORCE	REPORTED CLAIM COUNTS			ULTIMATE LOSS SEVERITY			ULTIMATE LOSSES		
		RELEASE	CLOSURE	OTHER	RELEASE	CLOSURE	OTHER	RELEASE	CLOSURE	OTHER
1994		3	15	56	76,444	58,397	56,214	229,333	875,960	3,148,007
1995		6	34	39	40,326	24,430	74,757	241,953	830,629	2,915,511
1996		12	84	31	113,834	46,281	76,995	1,366,007	3,887,596	2,386,859
1997		22	127	28	97,077	36,982	135,901	2,135,701	4,696,769	3,805,225
1998		19	161	38	71,474	31,357	77,806	1,358,000	5,048,510	2,956,627
1999		8	226	20	17,822	46,060	146,421	142,573	10,409,578	2,928,412
2000		26	90	59	82,232	63,063	68,334	2,138,029	5,675,688	4,031,726
2001		23	65	36	47,026	34,736	32,336	1,081,607	2,257,869	1,164,096
2002		20	68	47	35,405	66,191	97,599	708,091	4,500,954	4,587,161
2003		19	73	44	106,961	43,672	81,441	2,032,256	3,188,036	3,583,387
2004		10	68	38	122,247	34,970	130,564	1,222,469	2,377,966	4,961,432
2005		10	53	17	96,033	46,593	122,812	960,329	2,469,424	2,087,797
2006		5	54	17	43,831	28,786	171,236	219,157	1,554,457	2,911,014
2007		11	69	20	233,464	53,104	56,009	2,568,108	3,664,177	1,120,176
2008	2,664	9	73	12	199,309	38,065	182,466	1,793,782	2,778,718	2,189,597
2009	2,662	13	60	24	107,155	35,157	58,716	1,393,010	2,109,438	1,409,194
2010	2,622	8	56	2	54,522	34,885	269,393	436,175	1,953,538	538,786
2011	2,623	14	42	10	169,438	40,064	182,519	2,372,127	1,682,686	1,825,194
2012	2,617	13	68	7	98,723	42,467	166,583	1,283,402	2,887,769	1,166,079
2013	2,603	8	91	10	125,262	33,713	146,822	1,002,095	3,067,871	1,468,215
2014	2,573	10	83	11	199,567	32,043	121,632	1,995,665	2,659,593	1,337,948
2015	2,530	13	32	10	126,088	45,301	159,230	1,639,140	1,449,625	1,592,302
2016	2,534	12	54	11	166,860	36,123	178,118	1,918,969	1,954,408	1,923,679
2017	2,517	12	52	11	173,099	35,538	183,582	2,009,976	1,851,521	2,056,115
2018	2,500	12	50	12	179,339	34,954	189,045	2,102,371	1,750,980	2,192,921
2019	2,483	12	48	12	185,578	34,369	194,508	2,196,153	1,652,783	2,334,097
2020	2,465	12	46	12	191,817	33,784	199,971	2,291,323	1,556,931	2,479,645
2021	2,448	12	44	13	198,057	33,199	205,435	2,387,881	1,463,424	2,629,563

Notes: Future RYs for Cols (2), (6), (7), and (8) are linearly interpolated against report year.
Future RYs for Cols (3), (4), and (5) are linearly interpolated against Col (2).
Col (9) = (3) x (6); Col (10) = (4) x (7); Col (11) = (5) x (8).

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)
<u>RY</u>	<u>AST POLS</u> <u>IN FORCE</u>	<u>REPORTED</u> <u>CLAIMS</u>	<u>ULTIMATE</u> <u>SEVERITY</u>	<u>ULTIMATE</u> <u>LOSS</u>
1994		-	-	-
1995		-	-	-
1996		-	-	-
1997		-	-	-
1998		1	478,042	478,042
1999		7	384,176	2,689,230
2000		13	91,984	1,195,793
2001		24	259,498	6,227,944
2002		18	120,023	2,160,416
2003		21	71,894	1,509,766
2004		21	135,443	2,844,310
2005		19	86,127	1,636,421
2006		11	170,888	1,879,770
2007		12	102,716	1,232,589
2008	517	12	51,301	615,611
2009	563	11	84,314	927,457
2010	578	12	57,031	684,371
2011	810	13	98,214	1,276,787
2012	975	16	163,577	2,617,225
2013	1,003	24	64,483	1,547,586
2014	1,030	10	126,126	1,261,257
2015	1,021	13	87,788	1,141,248
2016	1,031	16	112,143	1,759,242
2017	1,042	16	116,004	1,829,705
2018	1,052	16	119,864	1,900,929
2019	1,062	16	123,725	1,972,925
2020	1,073	16	127,586	2,045,704
2021	1,084	16	131,447	2,119,277

Notes: Future RYs for Col (2) are increased by a decreasing percentage to a maximum of 1,100 based on assumptions from PSTIF.
Future RYs for Col (3) are linearly interpolated against Col (2).
Col (5) = (3) x (4).

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RY	POTENTIAL SITES		REPORTED CLAIM COUNTS		% REPORTED ON PREV YR		ULTIMATE LOSS SEVERITY		ULTIMATE LOSS	
	UST	AST	UST	AST	UST	AST	UST	AST	UST	AST
1994	15,480	2,403	-	-	-	-	-	-	-	-
1995	15,479	2,402	1	1	0.01%	0.04%	114,027	106,826	114,027	106,826
1996	14,166	2,399	1,313	3	8.48%	0.12%	50,250	39,972	65,977,885	119,916
1997	13,952	2,399	214	-	1.51%	0.00%	39,752	-	8,506,853	-
1998	13,633	2,387	319	12	2.29%	0.50%	58,188	52,924	18,561,896	635,092
1999	13,255	2,376	378	11	2.77%	0.46%	21,595	124,881	8,163,003	1,373,691
2000	12,696	2,327	559	49	4.22%	2.06%	26,097	106,328	14,588,469	5,210,072
2001	12,354	2,123	342	204	2.69%	8.77%	7,841	6,940	2,681,652	1,415,769
2002	12,228	2,105	126	18	1.02%	0.85%	26,381	24,245	3,324,040	436,415
2003	12,189	2,101	39	4	0.32%	0.19%	31,037	120,371	1,210,436	481,483
2004	12,129	2,088	60	13	0.49%	0.62%	32,541	134,090	1,952,430	1,743,171
2005	12,091	2,080	38	8	0.31%	0.38%	81,096	10,026	3,081,635	80,208
2006	12,073	2,068	18	12	0.15%	0.58%	28,534	-	513,609	-
2007	12,043	2,065	30	3	0.25%	0.15%	50,771	15,623	1,523,132	46,869
2008	12,021	2,055	22	10	0.18%	0.48%	40,429	6,314	889,444	63,141
2009	12,004	2,051	17	4	0.14%	0.19%	61,244	47,733	1,041,143	190,933
2010	11,974	2,049	30	2	0.25%	0.10%	36,464	4,981	1,093,928	9,962
2011	11,937	2,044	37	5	0.31%	0.24%	50,768	2,172	1,878,418	10,861
2012	11,916	2,040	21	4	0.18%	0.20%	37,945	5,771	796,850	23,085
2013	11,889	2,040	27	-	0.23%	0.00%	44,799	-	1,209,574	-
2014	11,856	2,039	33	1	0.28%	0.05%	39,979	29,989	1,319,307	29,989
2015	11,840	2,038	16	1	0.13%	0.05%	59,362	37,105	949,798	37,105
2016	11,815	2,034	25	4	0.21%	0.20%	42,686	39,831	1,059,032	165,291
2017	11,790	2,030	25	3	0.22%	0.17%	42,686	39,831	1,087,412	134,713
2018	11,765	2,027	25	3	0.21%	0.17%	42,686	39,831	1,068,520	136,205
2019	11,739	2,024	25	3	0.22%	0.14%	42,686	39,831	1,081,137	110,474
2020	11,713	2,022	26	3	0.22%	0.13%	42,686	39,831	1,115,823	105,660
2021	11,687	2,019	26	3	0.22%	0.13%	42,686	39,831	1,099,716	108,222

Notes: Future RYs for Cols (2) and (3) are [prior year sites] x (1 - [% reported from col (6) or (7)])
Future RYs for Cols (4) and (5) are the change in Cols (2) and (3), respectively.
Future RYs for Cols (6) and (7) are rolling average of prior 10 years.
Future RYs for Cols (8) and (9) are long-term averages from 1995-2015

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
Cash Flow Summary

UNDISCOUNTED VALUE OF CURRENT RESERVES - PAYMENT STREAM

<u>Category</u>	<u>Total</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>After 2024</u>
Insurance UST - Release	10,633,318	1,093,872	937,292	866,742	792,154	757,195	681,987	620,220	618,599	587,102	3,678,154
Insurance UST - Closure	15,317,375	2,086,051	1,571,599	1,225,804	1,055,282	960,904	936,147	885,638	803,848	755,074	5,037,029
Insurance UST - Other	17,941,460	1,861,658	1,698,168	1,580,794	1,462,025	1,368,979	1,276,540	1,125,296	1,043,259	923,854	5,600,887
Remedial UST	27,671,291	2,625,994	2,400,098	2,874,560	2,700,539	2,465,232	2,230,613	2,128,063	1,898,746	1,668,392	6,679,055
Insurance AST	10,049,031	1,471,157	1,400,330	1,073,451	946,772	895,225	738,438	687,999	621,767	474,589	1,739,303
Remedial AST	3,790,487	394,803	365,064	326,787	312,274	265,687	249,085	302,462	286,044	263,876	1,024,404
Total	85,402,962	9,533,535	8,372,550	7,948,138	7,269,046	6,713,223	6,112,810	5,749,679	5,272,266	4,672,885	23,758,831
Percent of Current Total											
Paid by Year - Undiscounted	100.0%	11.2%	9.8%	9.3%	8.5%	7.9%	7.2%	6.7%	6.2%	5.5%	27.8%

DISCOUNTED VALUE OF CURRENT RESERVES - PAYMENT STREAM

<u>Category</u>	<u>Total</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>After 2024</u>
Insurance UST - Release	10,143,298	1,090,443	928,504	853,240	774,932	736,095	658,833	595,412	590,138	556,583	3,359,119
Insurance UST - Closure	14,643,421	2,079,510	1,556,863	1,206,709	1,032,339	934,128	904,363	850,213	766,864	715,823	4,596,609
Insurance UST - Other	17,165,609	1,855,821	1,682,245	1,556,168	1,430,239	1,330,832	1,233,199	1,080,285	995,259	875,830	5,125,730
Remedial UST	26,599,808	2,617,761	2,377,594	2,829,780	2,641,826	2,396,537	2,154,880	2,042,941	1,811,386	1,581,665	6,145,437
Insurance AST	9,733,732	1,466,545	1,387,200	1,056,729	926,188	870,279	713,367	660,479	593,160	449,918	1,609,866
Remedial AST	3,645,182	393,565	361,641	321,696	305,485	258,284	240,628	290,364	272,884	250,159	950,476
Total	81,931,050	9,503,646	8,294,048	7,824,322	7,111,009	6,526,156	5,905,270	5,519,694	5,029,690	4,429,979	21,787,237
Percent of Current Total											
Paid by Year - Discounted	100.0%	11.6%	10.1%	9.5%	8.7%	8.0%	7.2%	6.7%	6.1%	5.4%	26.6%

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
ALAE Provision

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>RY</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>ALAE</u>	<u>ALAE PER \$10K</u> <u>INCURRED</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u>	<u>ALAE</u> <u>UNPAID</u>	<u>ULTIMATE</u> <u>ALAE</u>
1994	3,646,390	4,222,132	6,250	14.80	575,741	31,168	1,333	7,583
1995	4,102,367	4,171,445	9,365	22.45	69,078	37,500	301	9,666
1996	63,777,519	73,695,840	121,983	16.55	9,918,321	42,423	20,899	142,882
1997	17,402,932	19,039,910	40,217	21.12	1,636,978	104,638	3,857	44,074
1998	25,230,191	28,899,662	75,448	26.11	3,669,471	138,503	8,245	83,693
1999	22,292,418	25,057,652	73,136	29.19	2,765,235	648,834	8,488	81,624
2000	25,706,828	32,032,264	74,912	23.39	6,325,436	807,514	16,589	91,501
2001	11,390,911	14,530,457	47,209	32.49	3,139,545	298,480	7,806	55,015
2002	11,861,642	14,842,055	41,914	28.24	2,980,412	875,023	9,883	51,797
2003	8,947,175	11,340,067	50,307	44.36	2,392,892	665,297	7,779	58,086
2004	11,675,944	14,058,679	131,794	93.75	2,382,735	1,043,100	9,336	141,130
2005	7,286,829	9,484,238	104,903	110.61	2,197,409	831,576	8,065	112,969
2006	4,449,394	6,361,759	43,267	68.01	1,912,365	716,248	6,988	50,255
2007	7,566,465	9,283,942	95,525	102.89	1,717,477	871,108	7,228	102,753
2008	5,741,379	7,211,293	34,193	47.42	1,469,914	1,119,001	7,747	41,939
2009	4,412,758	5,915,889	27,559	46.58	1,503,131	1,155,286	7,968	35,526
2010	2,243,433	3,762,874	23,235	61.75	1,519,441	953,887	7,160	30,395
2011	4,457,972	7,141,631	25,443	35.63	2,683,659	1,904,442	13,564	39,007
2012	3,618,110	6,575,041	24,699	37.56	2,956,931	2,199,369	15,367	40,066
2013	2,425,310	5,626,670	20,985	37.30	3,201,360	2,680,854	17,890	38,875
2014	1,929,157	5,590,714	18,644	33.35	3,661,557	3,013,045	20,239	38,884
2015	222,644	2,597,211	6,895	26.55	2,374,567	4,212,006	22,560	29,455
TOTAL ALL YEARS	250,387,768	311,441,425	1,097,882	35.25	61,053,657	24,349,306	229,294	1,327,176
TOTAL 2008-2014	24,828,118	41,824,112	174,757	41.78				
			SELECTED RATIO	41.78				

Notes:

Col (5) = (4) / (3) * 10,000

Col (8) = [(6) x 50% + (7)] x Selected Ratio / 10,000

Col (9) = (8) + (4)

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
All Claim Types
ULAE Provision

(1)	(2)	(3)	(4)	(5)	(6)
FISCAL	TPA FIXED	TPA TOTAL	TPA	FY	AVERAGE
<u>YEAR</u>	<u>FEES</u>	<u>FEES</u>	<u>VARIABLE FEES</u>	<u>PAID</u>	<u>FEES PER</u>
			<u>(3) - (2)</u>	<u>LOSS</u>	<u>CY PAID</u>
2003	449,280	2,580,428	2,131,148	15,065,577	0.171
2004	486,000	2,446,854	1,960,854	13,739,514	0.178
2005	501,840	2,929,937	2,428,097	13,395,111	0.219
2006	511,680	2,966,391	2,454,711	12,847,713	0.231
2007	521,520	3,145,143	2,623,623	12,185,369	0.258
2008	531,360	3,344,895	2,813,535	15,806,387	0.212
2009	541,200	3,308,239	2,767,039	16,148,518	0.205
2010	546,120	3,288,185	2,742,065	14,134,856	0.233
2011	546,000	3,205,658	2,659,658	11,632,025	0.276
2012	546,000	3,068,521	2,522,521	12,461,529	0.246
2013	546,000	3,056,659	2,510,659	10,845,847	0.282
2014	551,460	3,193,992	2,642,532	10,116,592	0.316
2015	556,491	3,234,397	2,677,906	12,588,056	0.257
Total	6,834,951	39,769,299	32,934,348	170,967,095	0.233
(7) 3-Year Average					0.285
(8) 5-Year Average					0.275
(9) 10-Year ex. Hi/Lo					0.249
(10) Selected					0.275
(11) [50% x Case O/S] + IBNR					54,876,134
(12) ULAE IBNR = (10) x (11)					15,105,381
(13) Discount					614,084
(14) Discounted ULAE IBNR = (12) - (13)					14,491,297

Note: 2015 Fiscal Year TPA fees have been adjusted by 12/7 to reflect anticipated fees
for remainder of the year
Total Row in Column (6) Reflects a Weighted Average

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>
1994	223,932	229,333	194,724	229,333	34,609	-
1995	278,246	241,953	241,953	241,953	-	-
1996	1,228,329	1,366,007	1,068,112	1,366,007	297,895	-
1997	2,275,923	2,275,923	1,972,764	2,135,701	162,936	140,222
1998	1,423,519	1,423,519	1,226,074	1,358,000	131,926	65,519
1999	167,473	142,573	142,573	142,573	-	-
2000	1,984,339	2,133,481	1,649,008	2,133,481	484,473	-
2001	1,138,722	1,138,722	912,396	1,071,788	159,392	66,934
2002	791,333	791,333	607,282	700,590	93,307	90,744
2003	1,966,096	2,010,726	1,435,580	2,010,726	575,147	-
2004	1,040,712	1,199,204	707,282	1,199,204	491,923	-
2005	898,261	941,848	566,691	941,848	375,158	-
2006	166,555	213,084	97,281	213,084	115,803	-
2007	3,438,670	3,438,670	1,858,776	2,424,277	565,501	1,014,393
2008	2,833,579	2,833,579	1,417,026	1,711,851	294,825	1,121,728
2009	1,472,749	1,472,749	676,540	1,292,547	616,008	180,202
2010	438,745	438,745	181,398	346,255	164,857	92,490
2011	4,074,063	4,074,063	1,435,417	1,993,817	558,400	2,080,246
2012	1,259,467	1,259,467	369,814	754,272	384,458	505,195
2013	373,434	373,434	87,594	195,174	107,580	178,260
2014	4,285,638	4,285,638	719,825	1,324,230	604,405	2,961,409
2015	2,323,431	2,323,431	117,585	973,592	856,007	1,349,839
TOTAL	34,083,215	34,607,481	17,685,693	24,760,302	7,074,609	9,847,180

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Development of Losses to Ultimate

RY	Development Period in Months																						
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT	
1994				1.000	1.000	1.000	1.000	1.229	1.242	1.000	1.152	1.218	1.191	1.000	1.191	1.041	1.000	1.124	1.149	1.000	1.091	1.150	
1995					1.358	1.591	1.565	1.604	1.133	1.194	1.116	1.134	1.276	1.083	1.109	1.066	1.050	1.000	1.000	1.000	1.000	1.150	
1996	2.098	1.106	1.151	1.889	1.193	1.082	1.122	1.025	1.000	1.272	1.000	1.366	1.049	1.032	1.091	1.082	1.016	1.000	1.044	1.000	1.000	1.150	
1997	2.504	1.377	1.216	1.114	1.250	1.408	1.098	1.091	1.047	1.081	1.048	1.021	1.036	1.015	1.015	1.018	1.008	1.002	1.003	1.000	1.000	1.150	
1998	2.695	1.438	1.290	1.798	1.112	1.037	1.063	1.235	1.015	1.063	1.019	1.007	1.015	1.003	1.024	1.076	1.009	1.006	1.003	1.000	1.000	1.150	
1999		1.280	3.009	1.340	1.304	1.130	1.033	1.000	1.000	1.000	1.051	1.338	1.025	1.000	1.000	1.000	1.012	1.006	1.003	1.000	1.000	1.150	
2000		3.172	1.271	1.381	1.569	1.028	1.029	1.000	1.037	1.008	1.014	1.107	1.052	1.000	1.028	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2001	9.416	1.820	1.430	1.250	1.084	1.030	1.050	1.160	1.045	1.091	1.000	1.010	1.083	1.052	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2002	14.784	1.513	1.247	1.168	1.278	1.063	1.032	1.155	1.050	1.057	1.006	1.070	1.047	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2003	9.260	1.459	1.219	1.132	1.061	1.379	1.212	1.043	1.504	1.098	1.104	1.046	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2004	1.643	1.382	1.103	1.442	1.231	1.095	1.286	1.072	1.121	1.050	1.255	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2005	1.066	1.671	5.528	1.293	1.177	1.428	1.189	1.256	1.219	1.137	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2006		1.000	1.000	6.470	1.171	1.049	1.000	1.000	1.369	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2007	13.702	1.333	1.254	1.076	1.120	1.072	1.054	1.010	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2008	1.316	1.096	1.028	1.066	1.055	1.037	1.093	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2009	4.004	1.255	1.467	1.039	1.050	1.036	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2010	17.254	1.587	1.461	1.027	1.217	1.111	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2011	5.534	1.347	1.215	1.179	1.173	1.111	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2012	3.464	2.126	1.414	1.200	1.173	1.111	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2013	1.409	1.931	1.252	1.200	1.173	1.111	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2014	19.137	1.397	1.252	1.200	1.173	1.111	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	
2015	3.319	1.397	1.252	1.200	1.173	1.111	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150	

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	-	-	43,694	43,694	43,694	43,694	43,694	53,694	66,694	66,694	76,832	93,580	111,486	111,486	132,821	138,273	138,273	155,391	178,532	178,532	194,724	223,932
1995	-	-	-	-	15,175	20,605	32,780	51,312	82,297	93,282	111,391	124,261	140,954	179,922	194,810	216,027	230,340	241,953	241,953	241,953	241,953	278,246	
1996	60,606	127,123	140,605	161,781	305,670	364,732	394,527	442,597	453,495	453,495	576,781	576,781	787,820	826,524	853,309	930,849	1,007,552	1,023,213	1,023,213	1,068,112	1,068,112	1,228,329	
1997	150,598	377,057	519,125	631,334	703,267	879,004	1,237,696	1,359,105	1,483,423	1,553,597	1,679,250	1,760,677	1,797,439	1,862,946	1,890,296	1,917,996	1,952,890	1,968,351	1,972,764	1,979,063	1,979,063	2,275,923	
1998	71,919	193,815	278,696	359,433	646,106	718,507	745,388	792,136	978,580	992,873	1,055,025	1,075,457	1,082,693	1,099,371	1,103,031	1,129,278	1,215,534	1,226,074	1,233,903	1,237,843	1,237,843	1,423,519	
1999	-	12,585	16,113	48,483	64,952	84,727	95,744	98,894	98,894	98,894	103,964	139,096	142,573	142,573	142,573	142,573	144,244	145,165	145,629	145,629	145,629	167,473	
2000	-	140,585	445,902	566,818	782,614	1,228,212	1,262,017	1,298,340	1,298,340	1,346,953	1,357,619	1,376,791	1,524,125	1,603,731	1,603,891	1,649,008	1,689,303	1,709,106	1,720,020	1,725,512	1,725,512	1,984,339	
2001	16,703	157,277	286,167	409,158	511,400	554,458	571,001	599,455	695,506	726,601	792,933	792,933	801,191	867,543	912,396	946,291	969,414	980,779	987,042	990,193	990,193	1,138,722	
2002	9,216	136,257	206,137	257,078	300,195	383,621	407,778	420,844	485,920	509,980	539,053	542,052	580,088	607,282	634,052	657,607	673,676	681,573	685,926	688,116	688,116	791,333	
2003	21,836	202,209	294,954	359,527	407,049	431,955	595,741	722,007	752,772	1,132,407	1,243,625	1,372,437	1,435,580	1,508,815	1,575,326	1,633,847	1,673,772	1,693,393	1,704,207	1,709,649	1,709,649	1,966,096	
2004	71,257	117,103	161,795	178,485	257,392	316,743	346,872	446,145	478,479	536,422	563,361	707,282	759,894	798,659	833,866	864,843	885,976	896,362	902,086	904,967	904,967	1,040,712	
2005	12,800	13,642	22,790	125,995	162,944	191,715	273,716	325,538	408,831	498,368	566,691	610,470	655,881	689,341	719,728	746,465	764,706	773,670	778,611	781,097	781,097	898,261	
2006	-	8,947	8,947	57,897	57,884	67,789	71,084	71,084	71,084	97,281	105,075	113,193	121,613	127,817	133,451	138,409	141,791	143,453	144,369	144,830	144,830	166,555	
2007	58,988	808,267	1,077,402	1,350,931	1,454,130	1,628,782	1,745,892	1,840,192	1,858,776	2,008,449	2,169,372	2,336,966	2,510,806	2,638,893	2,755,219	2,857,573	2,927,400	2,961,718	2,980,631	2,990,148	2,990,148	3,438,670	
2008	750,154	987,266	1,081,739	1,111,591	1,185,280	1,249,946	1,296,178	1,417,026	1,531,693	1,655,029	1,787,634	1,925,738	2,068,988	2,174,535	2,270,393	2,354,735	2,412,275	2,440,554	2,456,139	2,463,981	2,463,981	2,833,579	
2009	81,174	324,978	407,777	598,236	621,700	652,756	676,540	736,497	796,096	860,199	929,121	1,000,900	1,075,354	1,130,212	1,180,034	1,223,871	1,253,777	1,268,475	1,276,575	1,280,651	1,280,651	1,472,749	
2010	3,627	62,582	99,320	145,127	148,993	181,398	201,547	219,409	237,164	256,261	276,793	298,177	320,357	336,700	351,543	364,602	373,511	377,890	380,303	381,517	381,517	438,745	
2011	134,434	743,915	1,002,304	1,217,775	1,435,417	1,684,410	1,871,511	2,037,372	2,202,238	2,379,567	2,570,225	2,768,788	2,974,749	3,126,504	3,264,325	3,385,592	3,468,322	3,508,981	3,531,388	3,542,664	3,542,664	4,074,063	
2012	35,519	123,028	261,546	369,814	443,749	520,723	578,564	629,839	680,806	735,626	794,567	855,951	919,622	966,536	1,009,142	1,046,631	1,072,206	1,084,776	1,091,703	1,095,189	1,095,189	1,259,467	
2013	32,189	45,369	87,594	109,650	131,572	154,395	171,545	186,748	201,860	218,114	235,590	253,790	272,669	286,579	299,212								

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Selection of Loss Development Factors

RY	Development Period in Months																					
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	
1994				1.000	1.000	1.000	1.000	1.229	1.242	1.000	1.152	1.218	1.191	1.000	1.191	1.041	1.000	1.124	1.149	1.000	1.091	
1995					1.358	1.591	1.565	1.604	1.133	1.194	1.116	1.134	1.276	1.083	1.109	1.066	1.050	1.000	1.000	1.000		
1996	2.098	1.106	1.151	1.889	1.193	1.082	1.122	1.025	1.000	1.272	1.000	1.366	1.049	1.032	1.091	1.082	1.016	1.000	1.044			
1997	2.504	1.377	1.216	1.114	1.250	1.408	1.098	1.091	1.047	1.081	1.048	1.021	1.036	1.015	1.015	1.018	1.008					
1998	2.695	1.438	1.290	1.798	1.112	1.037	1.063	1.235	1.015	1.063	1.019	1.007	1.015	1.003	1.024	1.076	1.009					
1999		1.280	3.009	1.340	1.304	1.130	1.033	1.000	1.000	1.000	1.051	1.338	1.025	1.000	1.000	1.000						
2000		3.172	1.271	1.381	1.569	1.028	1.029	1.000	1.037	1.008	1.014	1.107	1.052	1.000	1.028							
2001	9.416	1.820	1.430	1.250	1.084	1.030	1.050	1.160	1.045	1.091	1.000	1.010	1.083	1.052								
2002	14.784	1.513	1.247	1.168	1.278	1.063	1.032	1.155	1.050	1.057	1.006	1.070	1.047									
2003	9.260	1.459	1.219	1.132	1.061	1.379	1.212	1.043	1.504	1.098	1.104	1.046										
2004	1.643	1.382	1.103	1.442	1.231	1.095	1.286	1.072	1.121	1.050	1.255											
2005	1.066	1.671	5.528	1.293	1.177	1.428	1.189	1.256	1.219	1.137												
2006		1.000	1.000	6.470	1.171	1.049	1.000	1.000	1.369													
2007	13.702	1.333	1.254	1.076	1.120	1.072	1.054	1.010														
2008	1.316	1.096	1.028	1.066	1.055	1.037	1.093															
2009	4.004	1.255	1.467	1.039	1.050	1.036																
2010	17.254	1.587	1.461	1.027	1.217																	
2011	5.534	1.347	1.215	1.179																		
2012	3.464	2.126	1.414																			
2013	1.409	1.931																				
2014	19.137																					
VOL WTD 3	8.433	1.481	1.271	1.125	1.066	1.053	1.069	1.046	1.181	1.095	1.118	1.040	1.060	1.017	1.025	1.038	1.010	1.001	1.048	1.000	1.091	
VOL WTD 5	6.963	1.430	1.207	1.095	1.090	1.072	1.098	1.048	1.263	1.089	1.066	1.070	1.047	1.014	1.032	1.049	1.012	1.006	1.048	1.000	1.091	
VOL WTD ALL	3.319	1.397	1.252	1.200	1.173	1.111	1.089	1.081	1.104	1.080	1.053	1.074	1.051	1.018	1.037	1.049	1.012	1.006	1.048	1.000	1.091	
ARITH 3	8.003	1.801	1.363	1.082	1.107	1.048	1.049	1.089	1.236	1.095	1.122	1.042	1.061	1.017	1.017	1.032	1.011	1.001	1.064	1.000	1.091	
ARITH 5	9.359	1.649	1.317	1.077	1.123	1.124	1.125	1.076	1.252	1.087	1.076	1.114	1.044	1.014	1.031	1.049	1.017	1.032	1.064	1.000	1.091	
ARITH ALL	6.830	1.549	1.606	1.568	1.190	1.154	1.122	1.134	1.137	1.088	1.070	1.132	1.086	1.023	1.065	1.047	1.017	1.032	1.064	1.000	1.091	
5 YR HI LO	8.750	1.622	1.363	1.061	1.115	1.052	1.112	1.042	1.236	1.082	1.041	1.074	1.041	1.006	1.022	1.054	1.011	1.001	1.044	NA	NA	
SELECTED	3.319	1.397	1.252	1.200	1.173	1.111	1.089	1.081	1.081	1.080	1.077	1.074	1.051	1.044	1.037	1.024	1.012	1.006	1.003	1.000	1.000	1.150

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Paid Losses

	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	-	-	-	43,694	43,694	43,694	43,694	43,694	53,694	66,694	66,694	76,832	93,580	111,486	111,486	132,821	138,273	138,273	155,391	178,532	178,532	194,724
1995	-	-	-	-	15,175	20,605	32,780	51,312	82,297	93,282	111,391	124,261	140,954	179,922	194,810	216,027	230,340	241,953	241,953	241,953	241,953	
1996	60,606	127,123	140,605	161,781	305,670	364,732	394,527	442,597	453,495	453,495	576,781	576,781	787,820	826,524	853,309	930,849	1,007,552	1,023,213	1,023,213	1,068,112		
1997	150,598	377,057	519,125	631,334	703,267	879,004	1,237,696	1,359,105	1,483,423	1,553,597	1,679,250	1,760,677	1,797,439	1,862,946	1,890,296	1,917,996	1,952,890	1,968,351	1,972,764			
1998	71,919	193,815	278,696	359,433	646,106	718,507	745,388	792,136	978,580	992,873	1,055,025	1,075,457	1,082,693	1,099,371	1,103,031	1,129,278	1,215,534	1,226,074				
1999	-	12,585	16,113	48,483	64,952	84,727	95,744	98,894	98,894	98,894	98,894	103,964	139,096	142,573	142,573	142,573						
2000	-	140,585	445,902	566,818	782,614	1,228,212	1,262,017	1,298,340	1,298,340	1,346,953	1,357,619	1,376,791	1,524,125	1,603,731	1,603,891	1,649,008						
2001	16,703	157,277	286,167	409,158	511,400	554,458	571,001	599,455	695,506	726,601	792,933	792,933	801,191	867,543	912,396							
2002	9,216	136,257	206,137	257,078	300,195	383,621	407,778	420,844	485,920	509,980	539,053	542,052	580,088	607,282								
2003	21,836	202,209	294,954	359,527	407,049	431,955	595,741	722,007	752,772	1,132,407	1,243,625	1,372,437	1,435,580									
2004	71,257	117,103	161,795	178,485	257,392	316,743	346,872	446,145	478,479	536,422	563,361	707,282										
2005	12,800	13,642	22,790	125,995	162,944	191,715	273,716	325,538	408,831	498,368	566,691											
2006	-	8,947	8,947	8,947	57,884	67,789	71,084	71,084	71,084	97,281												
2007	58,988	808,267	1,077,402	1,350,931	1,454,130	1,628,782	1,745,892	1,840,192	1,858,776													
2008	750,154	987,266	1,081,739	1,111,591	1,185,280	1,249,946	1,296,178	1,417,026														
2009	81,174	324,978	407,777	598,236	621,700	652,756	676,540															
2010	3,627	62,582	99,320	145,127	148,993	181,398																
2011	134,434	743,915	1,002,304	1,217,775	1,435,417																	
2012	35,519	123,028	261,546	369,814																		
2013	32,189	45,369	87,594																			
2014	37,615	719,825																				
2015	117,585																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>
1994	229,333	194,724	229,333	34,609	-	34,609
1995	241,953	241,953	241,953	-	-	-
1996	1,366,007	1,068,112	1,366,007	297,895	-	297,895
1997	2,135,701	1,972,764	2,135,701	162,936	-	162,936
1998	1,358,000	1,226,074	1,358,000	131,926	-	131,926
1999	142,573	142,573	142,573	-	-	-
2000	2,138,029	1,649,008	2,133,481	484,473	4,549	489,022
2001	1,081,607	912,396	1,071,788	159,392	9,819	169,211
2002	708,091	607,282	700,590	93,307	7,502	100,809
2003	2,032,256	1,435,580	2,010,726	575,147	21,530	596,677
2004	1,222,469	707,282	1,199,204	491,923	23,265	515,188
2005	960,329	566,691	941,848	375,158	18,481	393,638
2006	219,157	97,281	213,084	115,803	6,073	121,876
2007	2,568,108	1,858,776	2,424,277	565,501	143,831	709,332
2008	1,843,562	1,417,026	1,711,851	294,825	131,711	426,536
2009	1,446,292	676,540	1,292,547	616,008	153,744	769,752
2010	427,743	181,398	346,255	164,857	81,487	246,345
2011	2,625,785	1,435,417	1,993,817	558,400	631,968	1,190,368
2012	1,008,534	369,814	754,272	384,458	254,261	638,719
2013	285,167	87,594	195,174	107,580	89,993	197,572
2014	2,060,878	719,825	1,324,230	604,405	736,648	1,341,054
2015	1,798,637	117,585	973,592	856,007	825,045	1,681,052
TOTAL	27,900,209	17,685,693	24,760,302	7,074,609	3,139,908	10,214,516

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Development of Losses to Ultimate

RY	Development Period in Months																					
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT
1994	1.240	1.000	1.210	1.000	1.000	1.000	1.000	1.000	1.249	1.000	1.033	1.269	1.000	1.157	1.115	1.000	1.000	1.378	1.010	1.000	1.040	1.000
1995	1.000	1.000	1.813	1.217	0.548	1.278	1.777	0.919	0.822	1.000	1.000	1.143	1.107	1.000	1.000	1.000	0.923	1.000	1.000	1.000	1.000	1.000
1996	1.474	1.153	0.784	3.459	1.255	0.930	0.978	1.000	0.819	1.012	1.000	1.041	1.000	1.017	1.385	0.988	1.000	1.000	1.000	1.000	1.000	1.000
1997	1.213	1.080	1.386	1.059	1.155	1.093	1.198	0.957	0.995	0.995	1.000	1.032	1.000	1.000	1.000	1.006	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.576	1.426	1.285	1.532	1.012	1.102	0.971	1.005	1.018	1.004	0.968	1.033	0.947	1.005	1.021	1.014	1.000	1.000	1.000	1.000	1.000	1.000
1999	0.594	1.000	1.738	1.000	0.952	0.795	0.854	1.000	1.000	1.202	1.256	1.008	0.948	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.189	1.625	1.185	0.983	0.923	1.013	0.886	1.000	1.022	1.002	0.982	1.121	0.992	1.241	0.993	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2001	0.559	0.945	1.079	0.779	1.080	0.964	1.027	1.153	1.000	0.959	1.018	1.000	1.077	1.000	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.176	1.166	0.925	1.000	0.907	0.955	1.108	1.007	0.802	1.027	1.043	1.000	0.987	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2003	0.949	0.918	1.212	0.948	1.232	1.141	1.029	1.018	1.186	1.051	1.000	1.018	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.824	0.891	0.981	1.381	1.024	1.650	1.000	1.033	1.449	1.000	0.960	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.907	1.000	0.996	1.014	0.958	2.418	1.079	1.031	1.029	1.004	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2006	0.750	1.000	1.349	1.586	1.000	0.942	1.000	1.410	1.000	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2007	2.668	1.000	0.995	0.975	1.248	1.011	1.060	1.025	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.023	0.933	1.022	1.075	1.010	0.987	1.031	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2009	0.617	0.966	1.049	1.000	0.980	1.478	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2010	0.722	1.118	0.966	1.165	1.131	1.104	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.634	1.105	1.092	0.992	1.066	1.104	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.001	1.395	1.435	1.015	1.066	1.104	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2013	0.869	0.666	1.093	1.015	1.066	1.104	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.087	1.065	1.093	1.015	1.066	1.104	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.187	1.065	1.093	1.015	1.066	1.104	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	50,001	62,000	62,000	75,000	75,000	75,000	75,000	75,000	75,000	93,694	93,694	96,832	122,832	122,832	142,070	158,405	158,405	158,405	218,273	220,532	220,532	229,333	229,333
1995	100,005	100,005	100,005	181,297	220,697	120,868	154,430	274,384	252,195	207,200	207,200	207,200	236,757	262,200	262,200	262,200	262,200	241,953	241,953	241,953	241,953	241,953	
1996	216,462	319,010	367,737	288,272	997,058	1,251,389	1,163,182	1,137,140	1,137,140	931,235	942,582	942,582	980,842	980,842	997,795	1,382,410	1,366,007	1,366,007	1,366,007	1,366,007	1,366,007	1,366,007	
1997	746,677	906,062	978,833	1,356,420	1,436,651	1,659,199	1,813,028	2,172,721	2,079,080	2,067,828	2,057,038	2,057,038	2,121,861	2,122,127	2,122,127	2,122,127	2,135,701	2,135,701	2,135,701	2,135,701	2,135,701	2,135,701	
1998	280,352	441,921	629,991	809,760	1,240,170	1,255,103	1,382,637	1,342,716	1,349,223	1,373,262	1,378,815	1,334,952	1,378,952	1,305,491	1,311,491	1,339,090	1,358,000	1,358,000	1,358,000	1,358,000	1,358,000	1,358,000	
1999	148,000	87,973	87,973	152,864	152,864	145,514	115,744	98,894	98,894	98,894	118,894	149,287	150,410	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	
2000	830,009	986,785	1,603,954	1,900,891	1,868,003	1,724,741	1,747,051	1,548,700	1,548,700	1,582,140	1,585,805	1,557,714	1,746,592	1,731,797	2,148,891	2,133,481	2,138,029	2,138,029	2,138,029	2,138,029	2,138,029	2,138,029	
2001	1,862,012	1,040,851	983,642	1,061,656	827,034	892,953	860,467	883,417	1,018,928	1,018,928	977,435	995,386	995,386	1,071,788	1,071,788	1,079,306	1,081,607	1,081,607	1,081,607	1,081,607	1,081,607	1,081,607	
2002	675,164	793,896	925,518	855,817	855,481	775,594	741,003	821,003	826,548	662,748	680,698	709,949	709,949	700,590	701,663	706,585	708,091	708,091	708,091	708,091	708,091	708,091	
2003	1,076,012	1,021,470	937,537	1,136,270	1,077,375	1,327,039	1,513,804	1,556,990	1,584,735	1,879,459	1,974,626	1,974,626	2,010,726	2,010,726	2,013,807	2,027,933	2,032,256	2,032,256	2,032,256	2,032,256	2,032,256	2,032,256	
2004	496,850	409,451	364,653	357,620	494,041	505,771	834,631	834,631	861,768	1,248,642	1,248,642	1,199,204	1,209,518	1,209,518	1,211,371	1,219,869	1,222,469	1,222,469	1,222,469	1,222,469	1,222,469	1,222,469	
2005	386,006	350,003	350,003	348,601	353,601	338,873	819,445	884,264	911,289	937,852	941,848	942,053	950,155	950,155	951,611	958,286	960,329	960,329	960,329	960,329	960,329	960,329	
2006	100,001	75,001	75,001	101,150	160,447	160,447	151,084	151,084	213,084	213,084	214,939	214,986	216,835	216,835	217,167	218,691	219,157	219,157	219,157	219,157	219,157	219,157	
2007	682,440	1,820,729	1,821,179	1,812,130	1,767,555	2,205,757	2,230,289	2,364,750	2,424,277	2,496,941	2,518,687	2,519,234	2,540,901	2,540,901	2,544,794	2,562,645	2,568,108	2,568,108	2,568,108	2,568,108	2,568,108	2,568,108	
2008	1,588,551	1,624,832	1,516,553	1,550,168	1,666,353	1,682,424	1,660,446	1,711,851	1,740,310	1,792,473	1,808,084	1,808,476	1,824,031	1,824,031	1,826,825	1,839,639	1,843,562	1,843,562	1,843,562	1,843,562	1,843,562	1,843,562	
2009	1,426,176	879,758	849,967	891,837	891,837	874,344	1,292,547	1,342,963	1,365,290	1,406,212	1,418,459	1,418,767	1,430,969	1,430,969	1,433,162	1,443,215	1,446,292	1,446,292	1,446,292	1,446,292	1,446,292	1,446,292	
2010	337,003	243,262	272,086	262,819	306,255	346,255	382,273	397,183	403,786	415,889	419,511	419,602	423,211	423,211	423,859	426,833	427,743	427,743	427,743	427,743	427,743	427,743	
2011	1,018,742	1,664,572	1,839,853	2,009,107	1,993,817	2,125,559	2,346,658	2,438,189	2,478,724	2,553,020	2,575,254	2,575,813	2,597,967	2,597,967	2,601,947	2,620,199	2,625,785	2,625,785	2,625,785	2,625,785	2,625,785	2,625,785	
2012	376,536	376,909	525,689	754,272	765,802	816,402	901,324	936,480	952,049	980,585	989,125	989,340	997,849	997,849	999,378	1,006,388	1,008,534	1,008,534	1,008,534	1,008,534	1,008,534	1,008,534	
2013	337,003	293,000	195,174	213,273	216,533	230,841	254,853	264,793	269,195	277,264	279,679	279,740	282,146	282,146	282,578	284,560	285,167	285,167	285,167	285,167	285,167	285,167	
2014	1,217,768	1,324,230	1,410,508	1,541,310	1,564,871	1,668,270	1,841,802	1,913,642	1,945,455	2,003,768	2,021,219	2,021,657	2,039,045	2,039,045	2,042,169	2,056,494	2,060,878	2,060,878	2,060,878	2,060,878	2,060,878	2,060,878	
2015	973,592	1,155,725	1,231,025	1,345,183	1,365,745	1,455,987	1,607,437	1,670,136	1,697,901	1,748,793	1,764,024	1,764,40											

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
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Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994	1.240	1.000	1.210	1.000	1.000	1.000	1.000	1.000	1.249	1.000	1.033	1.269	1.000	1.157	1.115	1.000	1.000	1.378	1.010	1.000	1.040
1995	1.000	1.000	1.813	1.217	0.548	1.278	1.777	0.919	0.822	1.000	1.000	1.143	1.107	1.000	1.000	1.000	0.923	1.000	1.000	1.000	
1996	1.474	1.153	0.784	3.459	1.255	0.930	0.978	1.000	0.819	1.012	1.000	1.041	1.000	1.017	1.385	0.988	1.000	1.000	1.000		
1997	1.213	1.080	1.386	1.059	1.155	1.093	1.198	0.957	0.995	0.995	1.000	1.032	1.000	1.000	1.000	1.006	1.000	1.000			
1998	1.576	1.426	1.285	1.532	1.012	1.102	0.971	1.005	1.018	1.004	0.968	1.033	0.947	1.005	1.021	1.014	1.000				
1999	0.594	1.000	1.738	1.000	0.952	0.795	0.854	1.000	1.000	1.202	1.256	1.008	0.948	1.000	1.000	1.000					
2000	1.189	1.625	1.185	0.983	0.923	1.013	0.886	1.000	1.022	1.002	0.982	1.121	0.992	1.241	0.993						
2001	0.559	0.945	1.079	0.779	1.080	0.964	1.027	1.153	1.000	0.959	1.018	1.000	1.077	1.000							
2002	1.176	1.166	0.925	1.000	0.907	0.955	1.108	1.007	0.802	1.027	1.043	1.000	0.987								
2003	0.949	0.918	1.212	0.948	1.232	1.141	1.029	1.018	1.186	1.051	1.000	1.018									
2004	0.824	0.891	0.981	1.381	1.024	1.650	1.000	1.033	1.449	1.000	0.960										
2005	0.907	1.000	0.996	1.014	0.958	2.418	1.079	1.031	1.029	1.004											
2006	0.750	1.000	1.349	1.586	1.000	0.942	1.000	1.410	1.000												
2007	2.668	1.000	0.995	0.975	1.248	1.011	1.060	1.025													
2008	1.023	0.933	1.022	1.075	1.010	0.987	1.031														
2009	0.617	0.966	1.049	1.000	0.980	1.478															
2010	0.722	1.118	0.966	1.165	1.131																
2011	1.634	1.105	1.092	0.992																	
2012	1.001	1.395	1.435																		
2013	0.869	0.666																			
2014	1.087																				
VOL WTD 3	1.033	1.097	1.147	1.009	1.013	1.088	1.046	1.044	1.208	1.024	0.995	1.010	1.015	1.142	1.003	1.009	1.000	1.000	1.001	1.000	1.040
VOL WTD 5	1.187	1.065	1.093	1.015	1.099	1.170	1.044	1.035	1.124	1.013	0.995	1.042	0.994	1.066	1.059	1.003	0.996	1.015	1.001	1.000	1.040
VOL WTD ALL	1.062	1.073	1.113	1.081	1.066	1.104	1.039	1.017	1.030	1.009	0.996	1.043	1.000	1.059	1.058	1.003	0.996	1.015	1.001	1.000	1.040
ARITH 3	0.986	1.055	1.164	1.053	1.040	1.159	1.030	1.155	1.159	1.018	1.001	1.006	1.018	1.080	1.005	1.007	1.000	1.000	1.003	1.000	1.040
ARITH 5	1.063	1.050	1.113	1.042	1.074	1.367	1.034	1.103	1.093	1.008	1.001	1.029	0.990	1.049	1.080	1.002	0.985	1.094	1.003	1.000	1.040
ARITH ALL	1.099	1.069	1.184	1.231	1.024	1.172	1.067	1.040	1.030	1.021	1.024	1.066	1.006	1.052	1.073	1.001	0.985	1.094	1.003	1.000	1.040
5 YR HI LO	0.986	1.063	1.054	1.022	1.047	1.159	1.030	1.029	1.072	1.010	1.000	1.009	0.975	1.002	1.007	1.002	1.000	1.000	1.000	NA	NA
SELECTED	1.187	1.065	1.093	1.015	1.066	1.104	1.039	1.017	1.030	1.009	1.000	1.009	1.000	1.002	1.007	1.002	1.000	1.000	1.000	1.000	1.000
																					<u>TAIL</u>
																					1.000

Missouri Petroleum Storage Tank Insurance Fund
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Incurred Losses

RY	Development in Months																						
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	
1994	50,001	62,000	62,000	75,000	75,000	75,000	75,000	75,000	75,000	93,694	93,694	96,832	122,832	122,832	142,070	158,405	158,405	158,405	218,273	220,532	220,532	229,333	
1995	100,005	100,005	100,005	181,297	220,697	120,868	154,430	274,384	252,195	207,200	207,200	207,200	236,757	262,200	262,200	262,200	262,200	241,953	241,953	241,953	241,953		
1996	216,462	319,010	367,737	288,272	997,058	1,251,389	1,163,182	1,137,140	1,137,140	931,235	942,582	942,582	980,842	980,842	997,795	1,382,410	1,366,007	1,366,007	1,366,007	1,366,007			
1997	746,677	906,062	978,833	1,356,420	1,436,651	1,659,199	1,813,028	2,172,721	2,079,080	2,067,828	2,057,038	2,057,038	2,121,861	2,122,127	2,122,127	2,122,127	2,135,701	2,135,701	2,135,701				
1998	280,352	441,921	629,991	809,760	1,240,170	1,255,103	1,382,637	1,342,716	1,349,223	1,373,262	1,378,815	1,334,952	1,378,952	1,305,491	1,311,491	1,339,090	1,358,000	1,358,000					
1999	148,000	87,973	87,973	152,864	152,864	145,514	115,744	98,894	98,894	98,894	118,894	149,287	150,410	142,573	142,573	142,573	142,573						
2000	830,009	986,785	1,603,954	1,900,891	1,868,003	1,724,741	1,747,051	1,548,700	1,548,700	1,582,140	1,585,805	1,557,714	1,746,592	1,731,797	2,148,891	2,133,481							
2001	1,862,012	1,040,851	983,642	1,061,656	827,034	892,953	860,467	883,417	1,018,928	1,018,928	977,435	995,386	995,386	1,071,788	1,071,788								
2002	675,164	793,896	925,518	855,817	855,481	775,594	741,003	821,003	826,548	662,748	680,698	709,949	709,949	700,590									
2003	1,076,012	1,021,470	937,537	1,136,270	1,077,375	1,327,039	1,513,804	1,556,990	1,584,735	1,879,459	1,974,626	1,974,626	2,010,726										
2004	496,850	409,451	364,653	357,620	494,041	505,771	834,631	834,631	861,768	1,248,642	1,248,642	1,199,204											
2005	386,006	350,003	350,003	348,601	353,601	338,873	819,445	884,264	911,289	937,852	941,848												
2006	100,001	75,001	75,001	101,150	160,447	160,447	151,084	151,084	213,084	213,084													
2007	682,440	1,820,729	1,821,179	1,812,130	1,767,555	2,205,757	2,230,289	2,364,750	2,424,277														
2008	1,588,551	1,624,832	1,516,553	1,550,168	1,666,353	1,682,424	1,660,446	1,711,851															
2009	1,426,176	879,758	849,967	891,837	891,837	874,344	1,292,547																
2010	337,003	243,262	272,086	262,819	306,255	346,255																	
2011	1,018,742	1,664,572	1,839,853	2,009,107	1,993,817																		
2012	376,536	376,909	525,689	754,272																			
2013	337,003	293,000	195,174																				
2014	1,217,768	1,324,230																					
2015	973,592																						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Losses Reserves

RY	Development in Months																						
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	
1994	50,001	62,000	62,000	31,306	31,306	31,306	31,306	31,306	21,306	27,000	27,000	20,000	29,252	11,346	30,584	25,584	20,133	20,133	62,882	42,000	42,000	34,609	
1995	100,005	100,005	100,005	181,297	205,522	100,263	121,650	223,072	169,898	113,919	95,810	82,940	95,804	82,278	67,391	46,174	31,860	(0)	(0)	(0)	(0)		
1996	155,857	191,887	227,132	126,491	691,388	886,657	768,655	694,543	683,645	477,740	365,801	365,801	193,022	154,317	144,486	451,561	358,455	342,793	342,793	297,895			
1997	596,079	529,005	459,707	725,085	733,384	780,195	575,331	813,616	595,658	514,231	377,788	296,361	324,422	259,181	231,831	204,131	182,811	167,350	162,936				
1998	208,433	248,105	351,295	450,326	594,064	536,596	637,249	550,580	370,643	380,388	323,790	259,494	296,259	206,120	208,461	209,812	142,466	131,926					
1999	148,000	75,388	71,860	104,380	87,911	60,788	20,000	0	0	0	20,000	45,323	11,314	0	0	0	0						
2000	830,009	846,200	1,158,052	1,334,074	1,085,389	496,529	485,033	250,360	250,360	235,187	228,186	180,924	222,467	128,066	545,000	484,473							
2001	1,845,309	883,574	697,476	652,498	315,634	338,494	289,467	283,962	323,422	292,327	184,502	202,452	194,195	204,244	159,392								
2002	665,947	657,640	719,382	598,738	555,286	391,974	333,225	400,159	340,628	152,768	141,645	167,897	129,862	93,307									
2003	1,054,176	819,261	642,583	776,743	670,326	895,084	918,063	834,983	831,963	747,052	731,001	602,190	575,147										
2004	425,593	292,348	202,858	179,135	236,649	189,028	487,758	388,485	383,289	712,220	685,281	491,923											
2005	373,207	336,362	327,213	222,606	190,657	147,157	545,729	558,726	502,458	439,484	375,158												
2006	100,001	66,054	66,054	92,204	102,563	92,658	80,000	80,000	142,000	115,803													
2007	623,451	1,012,461	743,777	461,199	313,425	576,975	484,397	524,558	565,501														
2008	838,397	637,566	434,814	438,577	481,073	432,478	364,268	294,825															
2009	1,345,002	554,779	442,189	293,601	270,137	221,587	616,008																
2010	333,376	180,681	172,766	117,692	157,263	164,857																	
2011	884,308	920,657	837,549	791,332	558,400																		
2012	341,017	253,881	264,143	384,458																			
2013	304,814	247,631	107,580																				
2014	1,180,153	604,405																					
2015	856,007																						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Ratio of Paid to Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	0%	0%	0%	58%	58%	58%	58%	58%	72%	71%	71%	79%	76%	91%	78%	84%	87%	87%	71%	81%	81%	85%
1995	0%	0%	0%	0%	7%	17%	21%	19%	33%	45%	54%	60%	60%	69%	74%	82%	88%	100%	100%	100%	100%	
1996	28%	40%	38%	56%	31%	29%	34%	39%	40%	49%	61%	61%	80%	84%	86%	67%	74%	75%	75%	78%		
1997	20%	42%	53%	47%	49%	53%	68%	63%	71%	75%	82%	86%	85%	88%	89%	90%	91%	92%	92%			
1998	26%	44%	44%	44%	52%	57%	54%	59%	73%	72%	77%	81%	79%	84%	84%	84%	90%	90%	90%			
1999	0%	14%	18%	32%	42%	58%	83%	100%	100%	100%	83%	70%	92%	100%	100%	100%	100%					
2000	0%	14%	28%	30%	42%	71%	72%	84%	84%	85%	86%	88%	87%	93%	75%	77%						
2001	1%	15%	29%	39%	62%	62%	66%	68%	68%	71%	81%	80%	80%	81%	85%							
2002	1%	17%	22%	30%	35%	49%	55%	51%	59%	77%	79%	76%	76%	82%	87%							
2003	2%	20%	31%	32%	38%	33%	39%	46%	48%	60%	63%	70%	71%									
2004	14%	29%	44%	50%	52%	63%	42%	53%	56%	43%	45%	59%										
2005	3%	4%	7%	36%	46%	57%	33%	37%	45%	53%	60%											
2006	0%	12%	12%	9%	36%	42%	47%	47%	33%	46%												
2007	9%	44%	59%	75%	82%	74%	78%	78%	77%													
2008	47%	61%	71%	72%	71%	74%		83%														
2009	6%	37%	48%	67%	70%	75%	52%															
2010	1%	26%	37%	55%	49%	52%																
2011	13%	45%	54%	61%	72%																	
2012	9%	33%	50%	49%																		
2013	10%	15%	45%																			
2014	3%	54%																				
2015	12%																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Release
Determination of Pure Premium

(1)	(2)	(3)	(4)	(5)	(6)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>POLICIES</u> <u>IN FORCE</u>	<u>PURE</u> <u>PREMIUM</u>
2008	2,833,579	1,843,562	2,338,570	2,664	878
2009	1,472,749	1,446,292	1,459,520	2,662	548
2010	438,745	427,743	433,244	2,622	165
2011	4,074,063	2,625,785	3,349,924	2,623	1,277
2012	1,259,467	1,008,534	1,134,000	2,617	433
2013	373,434	285,167	329,300	2,603	127
2014	4,285,638	2,060,878	3,173,258	2,573	1,233
2015	2,323,431	1,798,637	2,061,034	2,530	815
TOTAL	34,607,481	27,900,209	31,253,845	20,894	1,496

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>RY</u>	<u>POLICIES</u> <u>IN FORCE</u>	<u>PROJECTED</u> <u>PURE PREM</u>	<u>TRENDED</u> <u>PURE PREM</u>	<u>DETRENDED</u> <u>PURE PREM</u>	<u>EXPECTED</u> <u>LOSSES</u>	<u>PERCENT</u> <u>UNPAID</u>	<u>EXPECTED</u> <u>UNPAID</u>	<u>PAID</u> <u>LOSSES</u>	<u>INDICATED</u> <u>ULTIMATE</u>	<u>INCURRED</u> <u>LOSSES</u>	<u>IBNR</u> <u>RESERVE</u>	<u>CASE</u> <u>RESERVE</u>	<u>ULTIMATE</u> <u>PURE PREM</u>
2008	2,664	878	1,007	627	1,670,744	50.0%	835,233	1,417,026	2,252,259	1,711,851	540,408	294,825	845
2009	2,662	548	617	640	1,702,570	54.1%	920,457	676,540	1,596,997	1,292,547	304,449	616,008	600
2010	2,622	165	182	652	1,710,216	58.7%	1,003,132	181,398	1,184,530	346,255	838,274	164,857	452
2011	2,623	1,277	1,381	665	1,744,768	64.8%	1,130,033	1,435,417	2,565,450	1,993,817	571,633	558,400	978
2012	2,617	433	460	678	1,775,270	70.6%	1,254,002	369,814	1,623,816	754,272	869,544	384,458	620
2013	2,603	127	132	692	1,800,761	76.5%	1,378,367	87,594	1,465,961	195,174	1,270,787	107,580	563
2014	2,573	1,233	1,258	706	1,815,277	83.2%	1,510,380	719,825	2,230,204	1,324,230	905,974	604,405	867
2015	2,530	815	815	719	1,820,308	94.9%	1,728,186	117,585	1,845,770	973,592	872,179	856,007	730
TOTAL	20,894				14,039,916		9,759,789	5,005,198	14,764,987	8,591,738	6,173,249	3,586,540	707

Pure Premium Selection

Trend = 1.020

3-Year Average x Latest	616
5-Year Average x Latest	683
All Year Average x Latest	719
Selected Pure Premium	719

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>RY</u>	<u>POLICIES</u> <u>IN FORCE</u>	<u>PROJECTED</u> <u>PURE PREM</u>	<u>TRENDED</u> <u>PURE PREM</u>	<u>DETRENDED</u> <u>PURE PREM</u>	<u>EXPECTED</u> <u>LOSSES</u>	<u>PERCENT</u> <u>IBNR</u>	<u>EXPECTED</u> <u>IBNR</u>	<u>INCURRED</u> <u>LOSSES</u>	<u>INDICATED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSSES</u>	<u>UNPAID</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>ULTIMATE</u> <u>PURE PREM</u>
2005	2,664	878	1,007	627	1,670,744	1.9%	32,152	1,711,851	1,744,003	1,417,026	326,977	294,825	655
2006	2,662	548	617	640	1,702,570	2.8%	47,181	1,292,547	1,339,729	676,540	663,189	616,008	503
2007	2,622	165	182	652	1,710,216	5.6%	95,783	346,255	442,039	181,398	260,641	164,857	169
2008	2,623	1,277	1,381	665	1,744,768	7.1%	124,653	1,993,817	2,118,470	1,435,417	683,053	558,400	808
2009	2,617	433	460	678	1,775,270	10.6%	188,715	754,272	942,988	369,814	573,173	384,458	360
2010	2,603	127	132	692	1,800,761	19.1%	343,055	195,174	538,229	87,594	450,635	107,580	207
2011	2,573	1,233	1,258	706	1,815,277	24.1%	436,897	1,324,230	1,761,127	719,825	1,041,302	604,405	684
2012	2,530	815	815	719	1,820,308	25.2%	458,918	973,592	1,432,509	117,585	1,314,925	856,007	566
TOTAL	20,894				14,039,916		1,727,354	8,591,738	10,319,093	5,005,198	5,313,894	3,586,540	494

Pure Premium Selection

3-Year Average x Latest	616
5-Year Average x Latest	683
All Year Average x Latest	719
Selected Pure Premium	719

Trend = 1.020

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>
1994	774,760	875,960	722,650	875,960	153,310	-
1995	894,978	830,629	830,629	830,629	-	-
1996	4,010,489	4,010,489	3,703,617	3,887,596	183,980	122,893
1997	4,609,352	4,696,769	4,222,873	4,696,769	473,896	-
1998	5,031,853	5,031,853	4,527,913	5,014,309	486,396	17,544
1999	10,025,384	10,135,116	8,858,161	10,135,116	1,276,955	-
2000	5,777,830	5,777,830	4,988,988	5,511,724	522,736	266,106
2001	2,361,312	2,361,312	1,983,119	2,164,958	181,840	196,354
2002	4,870,848	4,870,848	4,004,981	4,303,344	298,362	567,504
2003	3,543,392	3,543,392	2,871,359	3,049,245	177,885	494,147
2004	2,547,565	2,547,565	1,994,768	2,244,931	250,163	302,633
2005	2,587,234	2,587,234	1,971,656	2,309,022	337,366	278,211
2006	1,622,619	1,622,619	1,207,387	1,440,812	233,424	181,807
2007	4,026,601	4,026,601	2,935,041	3,387,988	452,947	638,613
2008	3,006,073	3,006,073	2,105,246	2,518,897	413,652	487,176
2009	2,571,906	2,571,906	1,727,791	1,873,872	146,080	698,034
2010	1,949,686	1,949,686	1,241,412	1,718,575	477,162	231,111
2011	1,959,584	1,959,584	1,168,623	1,433,817	265,194	525,767
2012	2,585,933	2,735,440	1,389,447	2,735,440	1,345,993	-
2013	2,783,554	2,918,959	1,288,052	2,918,959	1,630,907	-
2014	2,692,555	2,692,555	911,475	2,275,421	1,363,946	417,134
2015	470,582	470,582	54,289	383,808	329,519	86,774
TOTAL	70,704,090	71,223,002	54,709,477	65,711,192	11,001,715	5,511,810

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Development of Losses to Ultimate

RY	Development Period in Months																			ULT		
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT
1994	1.590	1.284	2.725	1.390	1.000	1.129	1.360	1.656	1.129	1.207	1.047	1.079	1.019	1.004	1.102	1.083	1.001	1.059	1.031	1.000	1.046	1.072
1995	1.931	1.289	1.132	1.533	1.023	1.266	1.393	1.005	1.040	1.013	1.043	1.008	1.000	1.010	1.000	1.000	1.028	1.000	1.000	1.036	1.005	1.072
1996	1.951	1.854	1.381	1.832	1.102	1.078	1.026	1.059	1.034	1.034	1.022	1.015	1.052	1.015	1.018	1.008	1.011	1.004	1.023	1.005	1.005	1.072
1997	5.932	1.929	1.608	1.303	1.185	1.275	1.075	1.043	1.055	1.059	1.023	1.040	1.051	1.045	1.019	1.014	1.016	1.050	1.008	1.005	1.005	1.072
1998	5.396	1.373	1.182	1.137	1.047	1.093	1.057	1.077	1.068	1.091	1.022	1.062	1.028	1.009	1.026	1.015	1.047	1.018	1.008	1.005	1.005	1.072
1999	3.145	1.413	1.151	1.230	1.119	1.083	1.082	1.054	1.045	1.051	1.035	1.034	1.044	1.017	1.015	1.021	1.018	1.018	1.008	1.005	1.005	1.072
2000	2.794	1.171	1.209	1.059	1.096	1.051	1.035	1.083	1.030	1.048	1.022	1.069	1.019	1.023	1.018	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2001	1.379	1.610	1.131	1.121	1.052	1.061	1.021	1.044	1.031	1.037	1.057	1.024	1.013	1.024	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2002	2.952	1.311	1.160	1.055	1.048	1.343	1.023	1.026	1.012	1.018	1.028	1.020	1.012	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2003	2.242	1.245	1.134	1.118	1.091	1.096	1.060	1.025	1.029	1.042	1.015	1.027	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2004	6.475	1.290	1.079	1.064	1.094	1.117	1.039	1.023	1.013	1.082	1.016	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2005	2.800	1.295	1.163	1.080	1.079	1.006	1.039	1.058	1.049	1.027	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2006	3.574	1.540	1.136	1.366	1.032	1.073	1.086	1.027	1.001	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2007	4.897	1.574	1.091	1.110	1.096	1.059	1.011	1.071	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2008	3.181	1.294	1.214	1.216	1.094	1.068	1.037	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2009	4.550	1.176	1.057	1.032	1.024	1.028	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2010	9.898	1.200	1.190	1.142	1.092	1.055	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2011	2.092	1.360	1.105	1.049	1.068	1.055	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2012	2.259	1.678	1.189	1.110	1.068	1.055	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2013	2.154	1.421	1.161	1.110	1.068	1.055	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2014	7.132	1.367	1.161	1.110	1.068	1.055	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072
2015	2.934	1.367	1.161	1.110	1.068	1.055	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005	1.072

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	17,096	27,184	34,895	95,084	132,148	132,148	149,193	202,874	336,027	379,362	457,817	479,155	517,191	527,042	529,376	583,342	631,688	632,598	669,990	690,824	690,824	722,650	774,760
1995	89,034	171,911	221,544	250,710	384,248	393,149	497,892	693,726	697,392	725,043	734,723	766,019	772,311	772,311	779,668	779,668	779,668	801,569	801,569	830,629	834,782	894,978	
1996	248,435	484,694	898,742	1,241,483	2,274,586	2,506,109	2,700,383	2,769,493	2,933,288	3,033,001	3,134,874	3,203,100	3,252,258	3,422,969	3,474,090	3,537,955	3,565,408	3,605,861	3,620,092	3,703,617	3,722,135	3,740,745	4,010,489
1997	72,267	428,681	827,136	1,330,215	1,733,340	2,054,451	2,619,485	2,814,896	2,935,198	3,095,331	3,278,812	3,354,318	3,489,099	3,666,009	3,832,033	3,903,871	3,957,587	4,020,225	4,222,873	4,256,656	4,277,939	4,299,329	4,609,352
1998	244,191	1,317,603	1,808,685	2,137,859	2,431,813	2,545,169	2,781,548	2,941,195	3,167,671	3,383,414	3,689,967	3,771,262	4,003,931	4,114,580	4,152,017	4,258,947	4,324,127	4,527,913	4,609,949	4,646,829	4,670,063	4,693,413	5,031,853
1999	786,810	2,474,382	3,496,322	4,023,648	4,948,985	5,540,026	6,001,712	6,496,501	6,850,066	7,158,107	7,522,683	7,784,778	8,050,943	8,403,872	8,550,000	8,674,731	8,858,161	9,021,341	9,184,789	9,258,268	9,304,559	9,351,082	10,025,384
2000	738,273	2,062,618	2,415,497	2,919,665	3,092,893	3,389,522	3,561,543	3,685,610	3,990,320	4,108,957	4,305,211	4,399,521	4,703,612	4,793,636	4,902,861	4,988,988	5,105,136	5,199,180	5,293,378	5,335,726	5,362,404	5,389,216	5,777,830
2001	493,157	680,163	1,095,144	1,238,075	1,388,175	1,460,247	1,549,347	1,581,683	1,652,001	1,702,772	1,766,170	1,865,996	1,911,094	1,936,133	1,983,119	2,038,924	2,086,392	2,124,827	2,163,324	2,180,631	2,191,534	2,202,492	2,361,312
2002	523,306	1,545,046	2,024,839	2,349,790	2,479,316	2,598,612	3,489,397	3,570,739	3,663,170	3,707,244	3,775,271	3,880,256	3,958,320	4,004,981	4,090,721	4,205,835	4,303,750	4,383,032	4,462,443	4,498,143	4,520,634	4,543,237	4,870,848
2003	558,641	1,252,492	1,559,919	1,768,858	1,977,267	2,157,660	2,363,773	2,505,098	2,568,104	2,643,427	2,753,678	2,796,043	2,871,359	2,913,501	2,975,874	3,059,616	3,130,846	3,188,521	3,246,291	3,272,261	3,288,622	3,305,065	3,543,392
2004	143,829	931,294	1,201,475	1,296,399	1,379,054	1,509,347	1,686,522	1,752,111	1,791,788	1,815,522	1,963,819	1,994,768	2,064,399	2,094,697	2,139,541	2,199,748	2,250,960	2,292,426	2,333,960	2,352,632	2,364,395	2,376,217	2,547,565
2005	337,211	944,193	1,222,262	1,421,775	1,535,499	1,656,178	1,665,460	1,730,844	1,831,040	1,920,466	1,971,656	2,025,829	2,096,544	2,127,314	2,172,856	2,234,001	2,286,010	2,328,122	2,370,303	2,389,265	2,401,211	2,413,217	2,587,234
2006	114,292	408,515	629,120	714,825	976,707	1,008,090	1,081,296	1,174,274	1,206,522	1,207,387	1,236,551	1,270,527	1,314,876	1,334,174	1,362,737	1,401,084	1,433,703	1,460,114	1,486,568	1,498,460	1,505,953	1,513,483	1,622,619
2007	249,922	1,223,865	1,926,859	2,102,500	2,334,792	2,559,689	2,711,518	2,740,693	2,935,041	2,996,185	3,068,556	3,152,868	3,262,924	3,310,812	3,381,691	3,476,853	3,557,797	3,623,337	3,688,984	3,718,496	3,737,089	3,755,774	4,026,601
2008	285,783	909,119	1,176,822	1,428,082	1,736,851	1,899,675	2,029,161	2,105,246	2,191,165	2,236,813	2,290,842	2,353,785	2,435,947	2,471,699	2,524,614	2,595,657	2,656,086	2,705,015	2,754,024	2,776,056	2,789,937	2,803,886	3,006,073
2009	281,383	1,280,215	1,505,006	1,590,623	1,641,266	1,680,809	1,727,791	1,801,185	1,874,695	1,913,749	1,959,975	2,013,827	2,084,123	2,114,711	2,159,983	2,220,766	2,272,467	2,314,329	2,356,260	2,375,110	2,386,986	2,398,920	2,571,906
2010	70,430	697,094	836,490	995,262	1,136,718	1,241,412	1,309,788	1,365,425	1,421,151	1,450,757	1,485,799	1,526,623	1,579,912	1,603,100	1,637,420	1,683,497	1,722,690	1,754,425	1,786,211	1,800,501	1,809,504	1,818,551	1,949,686
2011	354,238	741,233	1,008,015	1,114,183	1,168,623	1,247,715	1,316,437	1,372,357	1,428,366	1,458,122	1,493,342	1,534,374	1,587,933	1,611,239	1,645,733	1,692,044	1,731,436	1,763,332	1,795,280	1,809,642	1,818,690	1,827,783	1,959,584
2012	308,280	696,402	1,168,776	1,389,447	1,542,154	1,646,526	1,737,215	1,811,008	1,884,919	1,924,187	1,970,665	2,024,811	2,095,490	2,126,244	2,171,764	2,232,878	2,284,861	2,326,951	2,369,111	2,388,064	2,400,004	2,412,004	2,585,933
2013	420,803	906,448	1,288,052	1,495,631	1,660,008	1,772,356	1,869,975	1,949,409	2,028,968	2,071,237	2,121,266	2,179,550	2,255,631	2,288,736	2,337,734	2,403,518	2,459,474						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994	1.590	1.284	2.725	1.390	1.000	1.129	1.360	1.656	1.129	1.207	1.047	1.079	1.019	1.004	1.102	1.083	1.001	1.059	1.031	1.000	1.046
1995	1.931	1.289	1.132	1.533	1.023	1.266	1.393	1.005	1.040	1.013	1.043	1.008	1.000	1.010	1.000	1.000	1.028	1.000	1.000	1.036	
1996	1.951	1.854	1.381	1.832	1.102	1.078	1.026	1.059	1.034	1.034	1.022	1.015	1.052	1.015	1.018	1.008	1.011	1.004	1.023		
1997	5.932	1.929	1.608	1.303	1.185	1.275	1.075	1.043	1.055	1.059	1.023	1.040	1.051	1.045	1.019	1.014	1.016	1.050			
1998	5.396	1.373	1.182	1.137	1.047	1.093	1.057	1.077	1.068	1.091	1.022	1.062	1.028	1.009	1.026	1.015	1.047				
1999	3.145	1.413	1.151	1.230	1.119	1.083	1.082	1.054	1.045	1.051	1.035	1.034	1.044	1.017	1.015	1.021					
2000	2.794	1.171	1.209	1.059	1.096	1.051	1.035	1.083	1.030	1.048	1.022	1.069	1.019	1.023	1.018						
2001	1.379	1.610	1.131	1.121	1.052	1.061	1.021	1.044	1.031	1.037	1.057	1.024	1.013	1.024							
2002	2.952	1.311	1.160	1.055	1.048	1.343	1.023	1.026	1.012	1.018	1.028	1.020	1.012								
2003	2.242	1.245	1.134	1.118	1.091	1.096	1.060	1.025	1.029	1.042	1.015	1.027									
2004	6.475	1.290	1.079	1.064	1.094	1.117	1.039	1.023	1.013	1.082	1.016										
2005	2.800	1.295	1.163	1.080	1.079	1.006	1.039	1.058	1.049	1.027											
2006	3.574	1.540	1.136	1.366	1.032	1.073	1.086	1.027	1.001												
2007	4.897	1.574	1.091	1.110	1.096	1.059	1.011	1.071													
2008	3.181	1.294	1.214	1.216	1.094	1.068	1.037														
2009	4.550	1.176	1.057	1.032	1.024	1.028															
2010	9.898	1.200	1.190	1.142	1.092																
2011	2.092	1.360	1.105	1.049																	
2012	2.259	1.678	1.189																		
2013	2.154	1.421																			
2014	7.132																				
VOL WTD 3	2.934	1.478	1.161	1.067	1.068	1.053	1.034	1.058	1.024	1.049	1.021	1.023	1.015	1.020	1.018	1.018	1.026	1.026	1.020	1.019	1.046
VOL WTD 5	3.084	1.344	1.144	1.109	1.072	1.047	1.036	1.043	1.021	1.037	1.026	1.037	1.028	1.022	1.018	1.016	1.025	1.028	1.020	1.019	1.046
VOL WTD A	3.108	1.373	1.174	1.169	1.087	1.107	1.054	1.055	1.037	1.050	1.027	1.038	1.032	1.021	1.019	1.017	1.025	1.028	1.020	1.019	1.046
ARITH 3	3.848	1.486	1.161	1.074	1.070	1.052	1.045	1.052	1.021	1.050	1.020	1.024	1.015	1.021	1.019	1.017	1.025	1.018	1.018	1.018	1.046
ARITH 5	4.707	1.367	1.151	1.110	1.068	1.047	1.042	1.041	1.021	1.041	1.027	1.035	1.023	1.024	1.019	1.012	1.021	1.028	1.018	1.018	1.046
ARITH ALL	3.730	1.415	1.265	1.213	1.075	1.114	1.090	1.089	1.041	1.059	1.030	1.038	1.026	1.018	1.028	1.023	1.021	1.028	1.018	1.018	1.046
5 YR HI LO	3.848	1.327	1.161	1.100	1.073	1.052	1.039	1.037	1.018	1.035	1.022	1.028	1.020	1.021	1.018	1.012	1.018	1.027	1.023	NA	NA
SELECTED	2.934	1.367	1.161	1.110	1.068	1.055	1.042	1.041	1.021	1.024	1.027	1.035	1.015	1.021	1.028	1.023	1.018	1.018	1.008	1.005	1.005
																					<u>TAIL</u> 1.072

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Paid Losses

RY	Development in Months																						
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>	
1994	17,096	27,184	34,895	95,084	132,148	132,148	149,193	202,874	336,027	379,362	457,817	479,155	517,191	527,042	529,376	583,342	631,688	632,598	669,990	690,824	690,824	722,650	
1995	89,034	171,911	221,544	250,710	384,248	393,149	497,892	693,726	697,392	725,043	734,723	766,019	772,311	772,311	779,668	779,668	779,668	801,569	801,569	801,569	830,629		
1996	248,435	484,694	898,742	1,241,483	2,274,586	2,506,109	2,700,383	2,769,493	2,933,288	3,033,001	3,134,874	3,203,100	3,252,258	3,422,969	3,474,090	3,537,955	3,565,408	3,605,861	3,620,092	3,703,617			
1997	72,267	428,681	827,136	1,330,215	1,733,340	2,054,451	2,619,485	2,814,896	2,935,198	3,095,331	3,278,812	3,354,318	3,489,099	3,666,009	3,832,033	3,903,871	3,957,587	4,020,225	4,222,873				
1998	244,191	1,317,603	1,808,685	2,137,859	2,431,813	2,545,169	2,781,548	2,941,195	3,167,671	3,383,414	3,689,967	3,771,262	4,003,931	4,114,580	4,152,017	4,258,947	4,324,127	4,527,913					
1999	786,810	2,474,382	3,496,322	4,023,648	4,948,985	5,540,026	6,001,712	6,496,501	6,850,066	7,158,107	7,522,683	7,784,778	8,050,943	8,403,872	8,550,000	8,674,731	8,858,161						
2000	738,273	2,062,618	2,415,497	2,919,665	3,092,893	3,389,522	3,561,543	3,685,610	3,990,320	4,108,957	4,305,211	4,399,521	4,703,612	4,793,636	4,902,861	4,988,988							
2001	493,157	680,163	1,095,144	1,238,075	1,388,175	1,460,247	1,549,347	1,581,683	1,652,001	1,702,772	1,766,170	1,865,996	1,911,094	1,936,133	1,983,119								
2002	523,306	1,545,046	2,024,839	2,349,790	2,479,316	2,598,612	3,489,397	3,570,739	3,663,170	3,707,244	3,775,271	3,880,256	3,958,320	4,004,981									
2003	558,641	1,252,492	1,559,919	1,768,858	1,977,267	2,157,660	2,363,773	2,505,098	2,568,104	2,643,427	2,753,678	2,796,043	2,871,359										
2004	143,829	931,294	1,201,475	1,296,399	1,379,054	1,509,347	1,686,522	1,752,111	1,791,788	1,815,522	1,963,819	1,994,768											
2005	337,211	944,193	1,222,262	1,421,775	1,535,499	1,656,178	1,665,460	1,730,844	1,831,040	1,920,466	1,971,656												
2006	114,292	408,515	629,120	714,825	976,707	1,008,090	1,081,296	1,174,274	1,206,522	1,207,387													
2007	249,922	1,223,865	1,926,859	2,102,500	2,334,792	2,559,689	2,711,518	2,740,693	2,935,041														
2008	285,783	909,119	1,176,822	1,428,082	1,736,851	1,899,675	2,029,161	2,105,246															
2009	281,383	1,280,215	1,505,006	1,590,623	1,641,266	1,680,809	1,727,791																
2010	70,430	697,094	836,490	995,262	1,136,718	1,241,412																	
2011	354,238	741,233	1,008,015	1,114,183	1,168,623																		
2012	308,280	696,402	1,168,776	1,389,447																			
2013	420,803	906,448	1,288,052																				
2014	127,794	911,475																					
2015	54,289																						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>
1994	875,960	722,650	875,960	153,310	-	153,310
1995	830,629	830,629	830,629	-	-	-
1996	3,887,596	3,703,617	3,887,596	183,980	-	183,980
1997	4,696,769	4,222,873	4,696,769	473,896	-	473,896
1998	5,048,510	4,527,913	5,014,309	486,396	34,200	520,597
1999	10,409,578	8,858,161	10,135,116	1,276,955	274,462	1,551,417
2000	5,675,688	4,988,988	5,511,724	522,736	163,964	686,700
2001	2,257,869	1,983,119	2,164,958	181,840	92,911	274,750
2002	4,500,954	4,004,981	4,303,344	298,362	197,611	495,973
2003	3,188,036	2,871,359	3,049,245	177,885	138,791	316,677
2004	2,377,966	1,994,768	2,244,931	250,163	133,035	383,198
2005	2,469,424	1,971,656	2,309,022	337,366	160,402	497,768
2006	1,554,457	1,207,387	1,440,812	233,424	113,645	347,069
2007	3,664,177	2,935,041	3,387,988	452,947	276,189	729,137
2008	2,777,486	2,105,246	2,518,897	413,652	258,589	672,241
2009	2,076,757	1,727,791	1,873,872	146,080	202,885	348,966
2010	1,915,731	1,241,412	1,718,575	477,162	197,157	674,319
2011	1,625,351	1,168,623	1,433,817	265,194	191,534	456,728
2012	3,168,188	1,389,447	2,735,440	1,345,993	432,749	1,778,742
2013	3,439,919	1,288,052	2,918,959	1,630,907	520,959	2,151,866
2014	2,754,655	911,475	2,275,421	1,363,946	479,234	1,843,180
2015	468,057	54,289	383,808	329,519	84,249	413,768
TOTAL	69,663,758	54,709,477	65,711,192	11,001,715	3,952,566	14,954,281

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Development of Losses to Ultimate

RY	Development Period in Months																						
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT	
1994	1.748	1.035	1.099	1.064	1.087	1.000	1.188	1.063	1.046	1.136	1.039	0.962	0.938	1.054	1.022	1.352	0.998	1.000	1.000	1.000	0.994	1.000	
1995	1.568	0.944	0.990	1.403	1.380	1.130	1.006	1.003	1.165	0.989	0.963	1.000	1.033	0.953	1.000	1.000	1.025	1.000	1.000	1.001	1.000	1.000	
1996	1.115	1.062	1.088	1.277	0.983	1.123	0.973	1.014	0.948	1.021	1.057	0.930	1.031	1.011	1.001	1.010	0.996	1.014	1.035	1.000	1.000	1.000	
1997	1.355	1.029	1.120	1.189	0.933	1.009	1.006	0.952	1.008	0.949	1.007	1.030	1.036	1.012	1.029	1.005	1.037	1.023	1.000	1.000	1.000	1.000	
1998	0.968	1.227	0.936	1.000	1.053	1.001	0.983	1.009	1.012	1.045	1.014	1.016	1.012	1.008	0.997	0.993	1.066	1.007	1.000	1.000	1.000	1.000	
1999	1.377	1.174	1.037	1.067	1.059	1.019	1.058	0.998	1.115	1.038	1.005	1.043	0.997	1.000	1.009	1.002	1.020	1.007	1.000	1.000	1.000	1.000	
2000	1.307	1.026	1.352	1.020	0.960	1.014	0.989	0.994	1.014	1.019	1.004	1.023	1.021	1.000	1.039	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2001	0.774	1.045	1.094	0.950	1.013	1.048	0.988	1.032	1.007	1.037	1.006	1.014	0.990	1.000	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2002	1.087	1.233	1.062	0.999	1.008	1.177	0.980	1.001	1.007	1.023	1.019	0.998	0.985	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2003	0.866	1.069	1.034	1.077	0.986	0.979	0.990	0.992	1.055	0.996	1.003	1.003	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2004	0.726	1.002	0.957	1.153	0.996	0.915	1.012	1.022	1.037	1.008	1.020	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2005	0.999	1.065	0.965	0.916	1.003	0.977	1.047	1.044	0.963	0.984	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2006	0.697	0.925	1.016	1.121	0.979	0.945	0.958	1.009	0.962	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2007	1.129	0.948	0.943	0.962	1.063	1.019	1.010	1.028	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2008	0.720	0.880	1.052	1.089	1.010	1.024	0.994	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2009	0.825	0.842	0.957	1.023	0.974	1.022	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2010	0.696	0.928	0.970	1.076	1.062	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2011	0.832	1.000	1.031	0.966	1.017	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2012	0.858	0.963	1.329	1.022	1.017	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2013	0.761	1.148	1.018	1.022	1.017	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2014	0.743	1.027	1.018	1.022	1.017	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
2015	1.007	1.027	1.018	1.022	1.017	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000	1.000	
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	187,103	327,100	338,664	372,338	396,280	430,925	430,925	512,003	544,249	569,328	646,825	671,833	646,361	606,161	639,180	653,025	882,676	881,282	881,282	881,282	881,282	875,960	875,960
1995	229,050	359,228	339,169	335,712	470,908	649,998	734,664	739,266	741,392	863,373	854,043	822,060	822,060	849,516	809,668	809,668	809,668	829,668	829,668	829,668	830,629	830,629	830,629
1996	2,074,608	2,312,993	2,456,425	2,673,073	3,413,485	3,354,566	3,767,622	3,665,813	3,718,947	3,524,021	3,596,366	3,799,750	3,534,045	3,643,349	3,685,176	3,687,940	3,723,882	3,707,363	3,757,936	3,887,596	3,887,596	3,887,596	3,887,596
1997	2,462,529	3,336,865	3,433,108	3,845,461	4,571,778	4,263,211	4,300,412	4,328,036	4,118,636	4,152,668	3,941,636	3,968,530	4,086,588	4,231,839	4,280,918	4,404,037	4,427,729	4,592,643	4,696,769	4,696,769	4,696,769	4,696,769	4,696,769
1998	3,675,965	3,559,113	4,365,735	4,088,438	4,086,851	4,304,774	4,307,747	4,235,040	4,274,042	4,324,783	4,519,773	4,581,805	4,653,835	4,710,482	4,749,789	4,737,115	4,702,682	5,014,309	5,048,510	5,048,510	5,048,510	5,048,510	5,048,510
1999	4,067,062	5,601,871	6,575,350	6,817,456	7,271,227	7,701,357	7,847,662	8,301,935	8,284,562	9,236,158	9,590,694	9,635,104	10,051,467	10,019,020	10,022,011	10,110,720	10,135,116	10,339,060	10,409,578	10,409,578	10,409,578	10,409,578	10,409,578
2000	2,762,343	3,611,594	3,705,600	5,011,259	5,112,429	4,908,784	4,977,899	4,921,943	4,894,275	4,961,257	5,054,309	5,076,112	5,193,017	5,303,446	5,303,354	5,511,724	5,526,041	5,637,239	5,675,688	5,675,688	5,675,688	5,675,688	5,675,688
2001	2,251,558	1,743,446	1,822,201	1,993,523	1,894,340	1,918,963	2,011,132	1,987,488	2,052,066	2,067,276	2,144,617	2,157,214	2,187,052	2,164,958	2,164,958	2,192,642	2,198,337	2,242,573	2,257,869	2,257,869	2,257,869	2,257,869	2,257,869
2002	2,522,017	2,740,461	3,377,838	3,586,278	3,582,481	3,609,619	4,249,535	4,164,966	4,169,633	4,200,328	4,294,840	4,375,247	4,368,354	4,303,344	4,315,742	4,370,927	4,382,281	4,470,463	4,500,954	4,500,954	4,500,954	4,500,954	4,500,954
2003	2,947,566	2,552,226	2,729,345	2,821,402	3,038,665	2,996,630	2,935,032	2,905,668	2,883,632	3,043,090	3,031,155	3,041,419	3,049,245	3,048,068	3,056,849	3,095,938	3,103,979	3,166,439	3,188,036	3,188,036	3,188,036	3,188,036	3,188,036
2004	2,784,076	2,021,522	2,025,940	1,938,584	2,234,614	2,224,835	2,035,591	2,059,705	2,105,618	2,182,953	2,200,006	2,244,931	2,274,441	2,273,563	2,280,113	2,309,269	2,315,268	2,361,857	2,377,966	2,377,966	2,377,966	2,377,966	2,377,966
2005	2,418,554	2,416,450	2,572,849	2,483,026	2,274,631	2,281,970	2,229,537	2,333,344	2,437,114	2,347,584	2,309,022	2,331,273	2,361,918	2,361,006	2,367,808	2,398,085	2,404,315	2,452,695	2,469,424	2,469,424	2,469,424	2,469,424	2,469,424
2006	2,279,915	1,590,227	1,471,489	1,494,938	1,675,834	1,640,664	1,549,814	1,484,507	1,497,613	1,440,812	1,453,487	1,467,493	1,486,783	1,486,210	1,490,491	1,509,550	1,513,471	1,543,926	1,554,457	1,554,457	1,554,457	1,554,457	1,554,457
2007	3,103,989	3,505,775	3,323,381	3,132,793	3,014,940	3,205,988	3,265,791	3,297,252	3,387,988	3,396,293	3,426,170	3,459,186	3,504,657	3,503,305	3,513,398	3,558,324	3,567,567	3,639,355	3,664,177	3,664,177	3,664,177	3,664,177	3,664,177
2008	3,378,033	2,432,035	2,139,716	2,250,962	2,450,839	2,475,575	2,534,647	2,518,897	2,568,132	2,574,427	2,597,074	2,622,101	2,656,568	2,655,543	2,663,194	2,697,248	2,704,254	2,758,671	2,777,486	2,777,486	2,777,486	2,777,486	2,777,486
2009	2,770,198	2,286,030	1,923,883	1,840,582	1,883,630	1,833,921	1,873,872	1,883,407	1,920,220	1,924,927	1,941,861	1,960,573	1,986,345	1,985,578	1,991,299	2,016,762	2,022,000	2,062,688	2,076,757	2,076,757	2,076,757	2,076,757	2,076,757
2010	2,399,535	1,670,654	1,551,137	1,504,347	1,618,767	1,718,575	1,728,577	1,737,373	1,771,332	1,775,674	1,791,294	1,808,556	1,832,330	1,831,623	1,836,900	1,860,388	1,865,221	1,902,753	1,915,731	1,915,731	1,915,731	1,915,731	1,915,731
2011	1,730,234	1,440,222	1,440,536	1,484,741	1,433,817	1,458,079	1,466,565	1,474,028	1,502,839	1,506,523	1,519,776	1,534,421	1,554,591	1,553,991	1,558,468	1,578,397	1,582,497	1,614,340	1,625,351	1,625,351	1,625,351	1,625,351	1,625,351
2012	2,490,976	2,137,662	2,058,476	2,735,440	2,794,843	2,842,136	2,858,678	2,873,224	2,929,384	2,936,565	2,962,398	2,990,945	3,030,261	3,029,092	3,037,819	3,076,663	3,084,655	3,146,726	3,168,188	3,168,188	3,168,188	3,168,188	3,168,188
2013	3,342,371	2,542,125	2,918,959	2,970,054	3,034,552	3,085,901	3,103,861	3,119,656	3,180,633	3,188,429	3,216,478												

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994	1.748	1.035	1.099	1.064	1.087	1.000	1.188	1.063	1.046	1.136	1.039	0.962	0.938	1.054	1.022	1.352	0.998	1.000	1.000	1.000	0.994
1995	1.568	0.944	0.990	1.403	1.380	1.130	1.006	1.003	1.165	0.989	0.963	1.000	1.033	0.953	1.000	1.000	1.025	1.000	1.000	1.001	
1996	1.115	1.062	1.088	1.277	0.983	1.123	0.973	1.014	0.948	1.021	1.057	0.930	1.031	1.011	1.001	1.010	0.996	1.014	1.035		
1997	1.355	1.029	1.120	1.189	0.933	1.009	1.006	0.952	1.008	0.949	1.007	1.030	1.036	1.012	1.029	1.005	1.037	1.023			
1998	0.968	1.227	0.936	1.000	1.053	1.001	0.983	1.009	1.012	1.045	1.014	1.016	1.012	1.008	0.997	0.993	1.066				
1999	1.377	1.174	1.037	1.067	1.059	1.019	1.058	0.998	1.115	1.038	1.005	1.043	0.997	1.000	1.009	1.002					
2000	1.307	1.026	1.352	1.020	0.960	1.014	0.989	0.994	1.014	1.019	1.004	1.023	1.021	1.000	1.039						
2001	0.774	1.045	1.094	0.950	1.013	1.048	0.988	1.032	1.007	1.037	1.006	1.014	0.990	1.000							
2002	1.087	1.233	1.062	0.999	1.008	1.177	0.980	1.001	1.007	1.023	1.019	0.998	0.985								
2003	0.866	1.069	1.034	1.077	0.986	0.979	0.990	0.992	1.055	0.996	1.003	1.003									
2004	0.726	1.002	0.957	1.153	0.996	0.915	1.012	1.022	1.037	1.008	1.020										
2005	0.999	1.065	0.965	0.916	1.003	0.977	1.047	1.044	0.963	0.984											
2006	0.697	0.925	1.016	1.121	0.979	0.945	0.958	1.009	0.962												
2007	1.129	0.948	0.943	0.962	1.063	1.019	1.010	1.028													
2008	0.720	0.880	1.052	1.089	1.010	1.024	0.994														
2009	0.825	0.842	0.957	1.023	0.974	1.022															
2010	0.696	0.928	0.970	1.076	1.062																
2011	0.832	1.000	1.031	0.966																	
2012	0.858	0.963	1.329																		
2013	0.761	1.148																			
2014	0.743																				
VOL WTD 3	0.782	1.049	1.134	1.022	1.013	1.021	0.993	1.029	0.989	0.996	1.014	1.003	1.002	1.000	1.014	1.001	1.036	1.017	1.024	1.001	0.994
VOL WTD 5	0.773	0.982	1.077	1.018	1.022	1.001	1.007	1.019	1.009	1.010	1.010	1.023	1.002	1.003	1.015	1.002	1.033	1.015	1.024	1.001	0.994
VOL WTD ALL	0.953	1.049	1.058	1.058	1.011	1.026	1.006	1.004	1.029	1.017	1.013	1.012	1.008	1.004	1.014	1.011	1.033	1.015	1.024	1.001	0.994
ARITH 3	0.787	1.037	1.110	1.022	1.015	1.021	0.987	1.027	0.987	0.996	1.014	1.005	0.999	1.000	1.015	1.000	1.033	1.012	1.012	1.001	0.994
ARITH 5	0.778	0.976	1.068	1.023	1.018	0.997	1.004	1.019	1.005	1.009	1.011	1.016	1.001	1.004	1.015	1.002	1.024	1.009	1.012	1.001	0.994
ARITH ALL	1.007	1.027	1.054	1.075	1.032	1.025	1.012	1.012	1.026	1.020	1.012	1.002	1.005	1.005	1.014	1.060	1.024	1.009	1.012	1.001	0.994
5 YR HI LO	1.007	0.964	1.018	1.022	1.017	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	NA	NA
SELECTED	1.007	1.027	1.018	1.022	1.017	1.006	1.005	1.020	1.002	1.009	1.010	1.013	1.000	1.003	1.013	1.003	1.020	1.007	1.000	1.000	1.000
																					TAIL
																					1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	187,103	327,100	338,664	372,338	396,280	430,925	430,925	512,003	544,249	569,328	646,825	671,833	646,361	606,161	639,180	653,025	882,676	881,282	881,282	881,282	881,282	875,960
1995	229,050	359,228	339,169	335,712	470,908	649,998	734,664	739,266	741,392	863,373	854,043	822,060	822,060	849,516	809,668	809,668	809,668	829,668	829,668	829,668	830,629	
1996	2,074,608	2,312,993	2,456,425	2,673,073	3,413,485	3,354,566	3,767,622	3,665,813	3,718,947	3,524,021	3,596,366	3,799,750	3,534,045	3,643,349	3,685,176	3,687,940	3,723,882	3,707,363	3,757,936	3,887,596		
1997	2,462,529	3,336,865	3,433,108	3,845,461	4,571,778	4,263,211	4,300,412	4,328,036	4,118,636	4,152,668	3,941,636	3,968,530	4,086,588	4,231,839	4,280,918	4,404,037	4,427,729	4,592,643	4,696,769			
1998	3,675,965	3,559,113	4,365,735	4,088,438	4,086,851	4,304,774	4,307,747	4,235,040	4,274,042	4,324,783	4,519,773	4,581,805	4,653,835	4,710,482	4,749,789	4,737,115	4,702,682	5,014,309				
1999	4,067,062	5,601,871	6,575,350	6,817,456	7,271,227	7,701,357	7,847,662	8,301,935	8,284,562	9,236,158	9,590,694	9,635,104	10,051,467	10,019,020	10,022,011	10,110,720	10,135,116					
2000	2,762,343	3,611,594	3,705,600	5,011,259	5,112,429	4,908,784	4,977,899	4,921,943	4,894,275	4,961,257	5,054,309	5,076,112	5,193,017	5,303,446	5,303,354	5,511,724						
2001	2,251,558	1,743,446	1,822,201	1,993,523	1,894,340	1,918,963	2,011,132	1,987,488	2,052,066	2,067,276	2,144,617	2,157,214	2,187,052	2,164,958	2,164,958							
2002	2,522,017	2,740,461	3,377,838	3,586,278	3,582,481	3,609,619	4,249,535	4,164,966	4,169,633	4,200,328	4,294,840	4,375,247	4,368,354	4,303,344								
2003	2,947,566	2,552,226	2,729,345	2,821,402	3,038,665	2,996,630	2,935,032	2,905,668	2,883,632	3,043,090	3,031,155	3,041,419	3,049,245									
2004	2,784,076	2,021,522	2,025,940	1,938,584	2,234,614	2,224,835	2,035,591	2,059,705	2,105,618	2,182,953	2,200,006	2,244,931										
2005	2,418,554	2,416,450	2,572,849	2,483,026	2,274,631	2,281,970	2,229,537	2,333,344	2,437,114	2,347,584	2,309,022											
2006	2,279,915	1,590,227	1,471,489	1,494,938	1,675,834	1,640,664	1,549,814	1,484,507	1,497,613	1,440,812												
2007	3,103,989	3,505,775	3,323,381	3,132,793	3,014,940	3,205,988	3,265,791	3,297,252	3,387,988													
2008	3,378,033	2,432,035	2,139,716	2,250,962	2,450,839	2,475,575	2,534,647	2,518,897														
2009	2,770,198	2,286,030	1,923,883	1,840,582	1,883,630	1,833,921	1,873,872															
2010	2,399,535	1,670,654	1,551,137	1,504,347	1,618,767	1,718,575																
2011	1,730,234	1,440,222	1,440,536	1,484,741	1,433,817																	
2012	2,490,976	2,137,662	2,058,476	2,735,440																		
2013	3,342,371	2,542,125	2,918,959																			
2014	3,061,607	2,275,421																				
2015	383,808																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Losses Reserves

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	170,007	299,915	303,770	277,254	264,132	298,776	281,731	309,129	208,222	189,966	189,008	192,679	129,170	79,119	109,805	69,683	250,988	248,684	211,292	190,458	190,458	153,310
1995	140,016	187,317	117,625	85,002	86,660	256,848	236,772	45,540	44,000	138,331	119,320	56,041	49,749	77,205	30,000	30,000	30,000	28,098	28,098	28,098	-	
1996	1,826,173	1,828,300	1,557,683	1,431,589	1,138,899	848,457	1,067,239	896,320	785,659	491,020	461,492	596,650	281,788	220,380	211,086	149,985	158,474	101,502	137,843	183,980		
1997	2,390,262	2,908,184	2,605,972	2,515,245	2,838,438	2,208,760	1,680,928	1,513,140	1,183,439	1,057,337	662,823	614,212	597,488	565,830	448,885	500,165	470,141	572,418	473,896			
1998	3,431,774	2,241,510	2,557,050	1,950,579	1,655,038	1,759,605	1,526,200	1,293,845	1,106,372	941,370	829,807	810,543	649,905	595,902	597,773	478,168	378,555	486,396				
1999	3,280,253	3,127,489	3,079,028	2,793,808	2,322,242	2,161,331	1,845,950	1,805,435	1,434,496	2,078,051	2,068,011	1,850,326	2,000,524	1,615,149	1,472,011	1,435,988	1,276,955					
2000	2,024,070	1,548,976	1,290,103	2,091,594	2,019,536	1,519,262	1,416,356	1,236,333	903,955	852,300	749,098	676,590	489,405	509,810	400,493	522,736						
2001	1,758,401	1,063,284	727,057	755,448	506,165	458,717	461,786	405,806	400,065	364,504	378,447	291,218	275,958	228,825	181,840							
2002	1,998,711	1,195,415	1,353,000	1,236,488	1,103,165	1,011,007	760,139	594,227	506,463	493,084	519,569	494,991	410,033	298,362								
2003	2,388,925	1,299,734	1,169,426	1,052,544	1,061,398	838,970	571,259	400,570	315,528	399,663	277,477	245,376	177,885									
2004	2,640,247	1,090,228	824,464	642,185	855,560	715,488	349,069	307,594	313,830	367,431	236,187	250,163										
2005	2,081,343	1,472,257	1,350,587	1,061,250	739,132	625,793	564,077	602,500	606,073	427,118	337,366											
2006	2,165,622	1,181,712	842,369	780,113	699,126	632,575	468,518	310,234	291,091	233,424												
2007	2,854,067	2,281,910	1,396,522	1,030,294	680,148	646,299	554,273	556,559	452,947													
2008	3,092,250	1,522,916	962,893	822,881	713,988	575,901	505,486	413,652														
2009	2,488,815	1,005,815	418,876	249,959	242,365	153,112	146,080															
2010	2,329,105	973,560	714,646	509,085	482,048	477,162																
2011	1,375,996	698,989	432,521	370,558	265,194																	
2012	2,182,697	1,441,260	889,700	1,345,993																		
2013	2,921,569	1,635,678	1,630,907																			
2014	2,933,813	1,363,946																				
2015	329,519																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Ratio of Paid to Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	9%	8%	10%	26%	33%	31%	35%	40%	62%	67%	71%	71%	80%	87%	83%	89%	72%	72%	76%	78%	78%	82%
1995	39%	48%	65%	75%	82%	60%	68%	94%	94%	84%	86%	93%	94%	91%	96%	96%	96%	97%	97%	97%	100%	
1996	12%	21%	37%	46%	67%	75%	72%	76%	79%	86%	87%	84%	92%	94%	94%	96%	96%	97%	96%	95%		
1997	3%	13%	24%	35%	38%	48%	61%	65%	71%	75%	83%	85%	85%	87%	90%	89%	89%	88%	90%			
1998	7%	37%	41%	52%	60%	59%	65%	69%	74%	78%	82%	82%	86%	87%	87%	90%	92%	90%				
1999	19%	44%	53%	59%	68%	72%	76%	78%	83%	78%	78%	81%	80%	84%	85%	86%	87%					
2000	27%	57%	65%	58%	60%	69%	72%	75%	82%	83%	85%	87%	91%	90%	92%	91%						
2001	22%	39%	60%	62%	73%	76%	77%	80%	81%	82%	82%	87%	87%	89%	92%							
2002	21%	56%	60%	66%	69%	72%	82%	86%	88%	88%	88%	89%	91%	93%								
2003	19%	49%	57%	63%	65%	72%	81%	86%	89%	87%	91%	92%	94%									
2004	5%	46%	59%	67%	62%	68%	83%	85%	85%	83%	89%	89%										
2005	14%	39%	48%	57%	68%	73%	75%	74%	75%	82%	85%											
2006	5%	26%	43%	48%	58%	61%	70%	79%	81%	84%												
2007	8%	35%	58%	67%	77%	80%	83%	83%	87%													
2008	8%	37%	55%	63%	71%	77%	80%	84%														
2009	10%	56%	78%	86%	87%	92%	92%															
2010	3%	42%	54%	66%	70%	72%																
2011	20%	51%	70%	75%	82%																	
2012	12%	33%	57%	51%																		
2013	13%	36%	44%																			
2014	4%	40%																				
2015	14%																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Closure
Determination of Pure Premium

(1) <u>RY</u>	(2) PAID LDM <u>ULTIMATE</u>	(3) INC LDM <u>ULTIMATE</u>	(4) SELECTED <u>ULTIMATE</u>	(5) POLICIES <u>IN FORCE</u>	(6) PURE <u>PREMIUM</u>
2008	3,006,073	2,777,486	2,891,780	2,664	1,086
2009	2,571,906	2,076,757	2,324,331	2,662	873
2010	1,949,686	1,915,731	1,932,709	2,622	737
2011	1,959,584	1,625,351	1,792,468	2,623	683
2012	2,735,440	3,168,188	2,951,814	2,617	1,128
2013	2,918,959	3,439,919	3,179,439	2,603	1,221
2014	2,692,555	2,754,655	2,723,605	2,573	1,059
2015	470,582	468,057	469,319	2,530	186
TOTAL	18,304,785	18,226,145	18,265,465	20,894	874

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POLICIES IN FORCE	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT UNPAID	EXPECTED UNPAID	PAID LOSSES	INDICATED ULTIMATE	INCURRED LOSSES	IBNR RESERVE	CASE RESERVE	ULTIMATE PURE PREM
2008	2,664	1,086	942	1,053	2,803,950	30.0%	840,257	2,105,246	2,945,503	2,518,897	426,606	413,652	1,106
2009	2,662	873	773	1,031	2,745,808	32.8%	901,190	1,727,791	2,628,981	1,873,872	755,110	146,080	988
2010	2,622	737	666	1,011	2,650,457	36.3%	962,847	1,241,412	2,204,259	1,718,575	485,685	477,162	841
2011	2,623	683	630	991	2,598,439	40.4%	1,048,827	1,168,623	2,217,450	1,433,817	783,633	265,194	845
2012	2,617	1,128	1,062	971	2,540,645	46.3%	1,175,532	1,389,447	2,564,979	2,735,440	(170,461)	1,345,993	980
2013	2,603	1,221	1,173	951	2,476,512	53.7%	1,330,540	1,288,052	2,618,592	2,918,959	(300,367)	1,630,907	1,006
2014	2,573	1,059	1,037	932	2,399,011	66.1%	1,586,906	911,475	2,498,380	2,275,421	222,959	1,363,946	971
2015	2,530	186	186	914	2,311,740	88.5%	2,045,045	54,289	2,099,334	383,808	1,715,526	329,519	830
TOTAL	20,894				20,526,562		9,891,143	9,886,335	19,777,478	15,858,788	3,918,690	5,972,453	947
	<u>Pure Premium Selection</u>				Trend =	0.980							
	3-Year Average x Latest		1,091										
	5-Year Average x Latest		914										
	All Year Average x Latest		898										
	Selected Pure Premium		914										

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
2008	2,664	1,086	942	1,053	2,803,950	9.3%	261,053	2,518,897	2,779,950	2,105,246	674,705	413,652	1,044
2009	2,662	873	773	1,031	2,745,808	9.8%	268,247	1,873,872	2,142,119	1,727,791	414,327	146,080	805
2010	2,622	737	666	1,011	2,650,457	10.3%	272,771	1,718,575	1,991,345	1,241,412	749,933	477,162	759
2011	2,623	683	630	991	2,598,439	11.8%	306,205	1,433,817	1,740,021	1,168,623	571,398	265,194	663
2012	2,617	1,128	1,062	971	2,540,645	13.7%	347,031	2,735,440	3,082,471	1,389,447	1,693,024	1,345,993	1,178
2013	2,603	1,221	1,173	951	2,476,512	15.1%	375,056	2,918,959	3,294,015	1,288,052	2,005,963	1,630,907	1,265
2014	2,573	1,059	1,037	932	2,399,011	17.4%	417,362	2,275,421	2,692,783	911,475	1,781,308	1,363,946	1,047
2015	2,530	186	186	914	2,311,740	18.0%	416,108	383,808	799,916	54,289	745,627	329,519	316
TOTAL	20,894				20,526,562		2,663,832	15,858,788	18,522,620	9,886,335	8,636,285	5,972,453	887
	<u>Pure Premium Selection</u>				Trend =	0.980							
	3-Year Average x Latest		1,091										
	5-Year Average x Latest		914										
	All Year Average x Latest		898										
	Selected Pure Premium		914										

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>
1994	2,967,067	3,116,839	2,729,017	3,116,839	387,822	-
1995	3,115,033	3,115,033	2,808,933	2,878,011	69,078	237,023
1996	2,239,213	2,344,436	1,979,584	2,344,436	364,852	-
1997	4,106,236	4,106,236	3,532,892	3,700,587	167,696	405,649
1998	2,643,898	2,857,819	2,204,678	2,857,819	653,142	-
1999	3,247,875	3,247,875	2,618,422	2,758,547	140,124	489,328
2000	4,267,638	4,267,638	3,344,627	3,772,662	428,035	494,976
2001	1,038,064	1,069,609	779,324	1,069,609	290,285	-
2002	4,537,251	4,537,251	3,249,469	4,119,846	870,377	417,404
2003	3,407,365	3,407,365	2,315,479	3,124,593	809,115	282,771
2004	5,696,010	5,696,010	3,673,274	4,200,197	526,923	1,495,813
2005	2,409,948	2,409,948	1,487,208	1,736,223	249,015	673,725
2006	2,659,248	2,659,248	1,509,703	2,347,051	837,348	312,198
2007	1,453,181	1,453,181	744,229	867,453	123,224	585,728
2008	2,479,482	2,479,482	1,146,107	1,699,293	553,187	780,189
2009	2,088,641	2,088,641	854,383	958,396	104,014	1,130,245
2010	500,096	500,096	177,574	220,645	43,071	279,451
2011	1,555,180	1,555,180	450,244	1,146,204	695,960	408,976
2012	1,461,179	1,461,179	340,184	556,332	216,148	904,847
2013	979,901	979,901	168,015	561,139	393,125	418,761
2014	400,948	400,948	44,273	320,413	276,140	80,534
2015	680,256	680,256	15,667	577,668	562,001	102,588
TOTAL	53,933,712	54,434,173	36,173,284	44,933,965	8,760,681	9,500,208

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Development of Losses to Ultimate

RY	Development Period in Months																					
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT
1994		1.566	2.122	1.438	1.840	1.224	1.340	1.256	1.374	1.033	1.027	1.066	1.045	1.062	1.057	1.055	1.027	1.035	1.030	1.016	1.043	1.087
1995	3.760	1.734	1.593	1.161	1.131	1.269	1.382	1.086	1.093	1.276	1.062	1.051	1.033	1.037	1.032	1.021	1.022	1.024	1.014	1.015	1.020	1.087
1996		2.391	4.177	1.897	1.678	1.269	1.332	1.060	1.130	1.071	1.029	1.053	1.054	1.140	1.002	1.054	1.034	1.094	1.043	1.020	1.020	1.087
1997	520.511	1.681	1.601	1.318	1.251	1.227	1.559	1.139	1.061	1.178	1.027	1.023	1.046	1.081	1.029	1.026	1.015	1.005	1.028	1.020	1.020	1.087
1998	18.330	1.363	1.853	1.780	1.198	1.171	1.075	1.059	1.104	1.156	1.118	1.118	1.199	1.046	1.167	1.015	1.092	1.032	1.028	1.020	1.020	1.087
1999	3.453	1.116	1.035	1.044	1.071	1.044	1.043	1.153	1.042	1.074	1.049	1.032	1.027	1.020	1.019	1.012	1.034	1.032	1.028	1.020	1.020	1.087
2000	8.917	1.206	1.216	1.172	1.090	1.079	1.091	1.076	1.157	1.053	1.017	1.032	1.036	1.009	1.034	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2001	1.729	1.108	1.687	1.112	1.158	1.220	1.100	1.171	1.005	1.045	1.023	1.028	1.025	1.010	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2002	3.256	2.453	2.032	1.367	1.642	1.240	1.180	1.126	1.054	1.044	1.077	1.079	1.065	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2003	3.629	2.485	1.410	1.189	1.228	1.199	1.072	1.100	1.068	1.027	1.049	1.080	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2004	6.103	1.809	1.261	1.316	1.260	1.135	1.132	1.107	1.123	1.052	1.041	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2005	5.222	2.259	1.250	1.104	1.109	1.018	1.046	1.033	1.054	1.103	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2006	100.428	1.629	1.471	1.443	1.147	1.195	1.128	1.059	1.190	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2007	45.101	1.733	1.075	1.017	1.041	1.044	1.029	1.102	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2008		1.535	1.328	1.277	1.493	1.274	1.276	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2009	2.291	1.458	1.263	1.107	1.204	1.079	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2010		2.208	2.273	1.135	1.042	1.152	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2011	2.002	2.024	1.869	1.704	1.226	1.152	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2012	6.056	1.931	1.627	1.244	1.226	1.152	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2013		2.029	1.358	1.244	1.226	1.152	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2014		1.553	1.358	1.244	1.226	1.152	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087
2015	4.795	1.553	1.358	1.244	1.226	1.152	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.020	1.087

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	67,556	105,762	224,445	322,720	593,891	727,102	973,960	1,223,383	1,680,534	1,736,151	1,783,144	1,901,121	1,985,974	2,108,783	2,229,646	2,353,177	2,416,592	2,500,825	2,575,464	2,617,719	2,729,017	2,967,067
1995	57,146	214,861	372,610	593,564	689,047	779,151	988,375	1,365,685	1,483,319	1,621,206	2,068,109	2,195,718	2,307,489	2,384,650	2,474,037	2,554,120	2,607,829	2,663,932	2,728,277	2,767,464	2,808,933	2,865,111	3,115,033
1996	-	17,700	42,316	176,760	335,328	562,825	713,987	950,907	1,008,006	1,138,950	1,219,963	1,255,045	1,321,564	1,392,644	1,587,262	1,590,384	1,676,801	1,734,357	1,897,262	1,979,584	2,019,176	2,059,559	2,239,213
1997	439	228,598	384,266	615,310	810,739	1,014,623	1,245,366	1,941,775	2,211,344	2,345,205	2,763,348	2,836,923	2,901,679	3,033,730	3,280,943	3,376,266	3,462,906	3,516,084	3,532,892	3,630,132	3,702,735	3,776,789	4,106,236
1998	6,465	118,511	161,556	299,311	532,819	638,505	747,760	804,023	851,858	940,596	1,087,299	1,215,530	1,359,258	1,629,754	1,704,629	1,989,855	2,018,841	2,204,678	2,274,736	2,337,347	2,384,094	2,431,776	2,643,898
1999	357,471	1,234,237	1,376,895	1,425,317	1,488,590	1,594,064	1,663,943	1,736,098	2,001,842	2,085,194	2,238,708	2,349,101	2,424,075	2,490,058	2,539,119	2,586,804	2,618,422	2,708,318	2,794,381	2,871,295	2,928,721	2,987,295	3,247,875
2000	114,187	1,018,212	1,227,935	1,493,269	1,750,358	1,908,405	2,059,006	2,247,037	2,418,072	2,797,305	2,945,750	2,995,139	3,091,814	3,203,887	3,233,491	3,344,627	3,440,551	3,558,672	3,671,757	3,772,820	3,848,276	3,925,242	4,267,638
2001	104,196	180,134	199,654	336,731	374,550	433,710	529,272	581,958	681,517	684,727	715,780	732,297	752,978	771,454	779,324	813,550	836,883	865,614	893,121	917,704	936,058	954,779	1,038,064
2002	39,750	129,433	317,549	645,166	881,959	1,448,299	1,795,420	2,119,144	2,385,722	2,515,613	2,626,157	2,827,608	3,051,616	3,249,469	3,406,332	3,555,927	3,657,911	3,783,495	3,903,724	4,011,172	4,091,395	4,173,223	4,537,251
2003	70,930	257,387	639,714	902,054	1,072,965	1,317,164	1,579,451	1,692,868	1,861,811	1,989,247	2,043,300	2,143,512	2,315,479	2,440,272	2,558,072	2,670,415	2,747,002	2,841,313	2,931,602	3,012,292	3,072,538	3,133,989	3,407,365
2004	90,918	554,838	1,003,934	1,265,633	1,665,587	2,099,306	2,382,002	2,697,142	2,987,009	3,355,323	3,528,803	3,673,274	3,870,731	4,079,345	4,276,268	4,464,068	4,592,098	4,749,755	4,900,689	5,035,577	5,136,288	5,239,014	5,696,010
2005	64,509	336,850	760,805	951,148	1,049,818	1,164,238	1,184,748	1,238,896	1,279,491	1,348,838	1,487,208	1,554,141	1,637,683	1,725,947	1,809,264	1,888,721	1,942,890	2,009,593	2,073,453	2,130,523	2,173,133	2,216,596	2,409,948
2006	2,233	224,299	365,337	537,313	775,151	888,935	1,062,080	1,197,945	1,268,221	1,509,703	1,641,054	1,714,911	1,807,095	1,904,490	1,996,425	2,084,102	2,143,874	2,217,478	2,287,943	2,350,917	2,397,936	2,445,895	2,659,248
2007	7,065	318,642	552,262	593,816	603,938	628,469	656,318	675,212	744,229	824,997	896,776	937,135	987,511	1,040,733	1,090,973	1,138,885	1,171,548	1,211,770	1,250,277	1,284,690	1,310,383	1,336,591	1,453,181
2008	-	134,080	205,854	273,370	472,091	704,738	898,168	1,146,107	1,269,837	1,407,647	1,530,119	1,598,982	1,684,935	1,775,745	1,861,466	1,943,216	1,998,948	2,067,576	2,133,278	2,191,995	2,235,835	2,280,551	2,479,482
2009	140,848	322,681	470,506	594,291	657,716	792,191	854,383	965,446	1,069,672	1,185,759	1,288,926	1,346,934	1,419,339	1,495,835	1,568,043	1,636,907	1,683,853	1,741,664	1,797,009	1,846,470	1,883,400	1,921,068	2,088,641
2010	-	29,916	66,069	150,177	170,474	177,574	204,570	231,163	256,118	283,914	308,615	322,505	339,841	358,157	375,446	391,935	403,175	417,017	430,269	442,112	450,954	459,973	500,096
2011	34,886	69,855	141,373	264,278	450,244	552,213	636,164	718,860	796,466	882,904	959,720	1,002,913	1,056,824	1,113,782	1,167,548	1,218,823	1,253,779	1,296,824	1,338,033	1,374,862	1,402,359	1,430,406	1,555,180
2012	17,882	108,288	209,139	340,184	423,030	518,835	597,712	675,410	748,325	829,538	901,711	942,293	992,946	1,046,461	1,096,977	1,145,153	1,177,996	1,218,439	1,257,158	1,291,761	1,317,596	1,343,948	1,461,179
2013	-	82,788	168,015	228,135	283,694	347,943	400,840	452,946	501,844	556,307	604,709	631,924	665,893	701,781	735,658	767,966	789,992	817,114	843,079	866,284	883,610	901,282	979,901
2014	-	44,273	68,747	93,346	116,079	142,368	164,012	185,333	205,340	227,625	247,430	258,565	272,464	287,149	301,011	314,230	32						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994		1.566	2.122	1.438	1.840	1.224	1.340	1.256	1.374	1.033	1.027	1.066	1.045	1.062	1.057	1.055	1.027	1.035	1.030	1.016	1.043
1995	3.760	1.734	1.593	1.161	1.131	1.269	1.382	1.086	1.093	1.276	1.062	1.051	1.033	1.037	1.032	1.021	1.022	1.024	1.014	1.015	
1996		2.391	4.177	1.897	1.678	1.269	1.332	1.060	1.130	1.071	1.029	1.053	1.054	1.140	1.002	1.054	1.034	1.094	1.043		
1997	520.511	1.681	1.601	1.318	1.251	1.227	1.559	1.139	1.061	1.178	1.027	1.023	1.046	1.081	1.029	1.026	1.015	1.005			
1998	18.330	1.363	1.853	1.780	1.198	1.171	1.075	1.059	1.104	1.156	1.118	1.118	1.199	1.046	1.167	1.015	1.092				
1999	3.453	1.116	1.035	1.044	1.071	1.044	1.043	1.153	1.042	1.074	1.049	1.032	1.027	1.020	1.019	1.012					
2000	8.917	1.206	1.216	1.172	1.090	1.079	1.091	1.076	1.157	1.053	1.017	1.032	1.036	1.009	1.034						
2001	1.729	1.108	1.687	1.112	1.158	1.220	1.100	1.171	1.005	1.045	1.023	1.028	1.025	1.010							
2002	3.256	2.453	2.032	1.367	1.642	1.240	1.180	1.126	1.054	1.044	1.077	1.079	1.065								
2003	3.629	2.485	1.410	1.189	1.228	1.199	1.072	1.100	1.068	1.027	1.049	1.080									
2004	6.103	1.809	1.261	1.316	1.260	1.135	1.132	1.107	1.123	1.052	1.041										
2005	5.222	2.259	1.250	1.104	1.109	1.018	1.046	1.033	1.054	1.103											
2006	100.428	1.629	1.471	1.443	1.147	1.195	1.128	1.059	1.190												
2007	45.101	1.733	1.075	1.017	1.041	1.044	1.029	1.102													
2008		1.535	1.328	1.727	1.493	1.274	1.276														
2009	2.291	1.458	1.263	1.107	1.204	1.079															
2010		2.208	2.273	1.135	1.042																
2011	2.002	2.024	1.869	1.704																	
2012	6.056	1.931	1.627																		
2013		2.029																			
2014																					
VOL WTD 3	13.161	1.987	1.812	1.267	1.288	1.133	1.154	1.058	1.123	1.055	1.054	1.073	1.048	1.013	1.059	1.019	1.041	1.031	1.028	1.016	1.043
VOL WTD 5	6.351	1.720	1.484	1.255	1.191	1.114	1.125	1.085	1.096	1.051	1.043	1.053	1.062	1.037	1.044	1.024	1.034	1.032	1.028	1.016	1.043
VOL WTD ALL	4.795	1.553	1.358	1.244	1.226	1.152	1.172	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.016	1.043
ARITH 3	6.056	1.995	1.923	1.315	1.246	1.132	1.144	1.065	1.123	1.060	1.056	1.063	1.042	1.013	1.073	1.017	1.047	1.041	1.029	1.016	1.043
ARITH 5	4.029	1.930	1.672	1.338	1.185	1.122	1.122	1.080	1.098	1.054	1.041	1.050	1.070	1.033	1.050	1.026	1.038	1.039	1.029	1.016	1.043
ARITH ALL	48.719	1.786	1.692	1.335	1.270	1.168	1.186	1.109	1.112	1.093	1.047	1.056	1.059	1.051	1.049	1.031	1.038	1.039	1.029	1.016	1.043
5 YR HI LO	NA	1.995	1.608	1.315	1.131	1.106	1.102	1.087	1.082	1.047	1.038	1.048	1.043	1.025	1.027	1.020	1.028	1.030	1.030	NA	NA
SELECTED	4.795	1.553	1.358	1.244	1.226	1.152	1.130	1.108	1.109	1.087	1.045	1.054	1.054	1.048	1.044	1.029	1.034	1.032	1.028	1.020	1.087

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Paid Losses

RY	Development in Months																						
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>	
1994	-	67,556	105,762	224,445	322,720	593,891	727,102	973,960	1,223,383	1,680,534	1,736,151	1,783,144	1,901,121	1,985,974	2,108,783	2,229,646	2,353,177	2,416,592	2,500,825	2,575,464	2,617,719	2,729,017	
1995	57,146	214,861	372,610	593,564	689,047	779,151	988,375	1,365,685	1,483,319	1,621,206	2,068,109	2,195,718	2,307,489	2,384,650	2,474,037	2,554,120	2,607,829	2,663,932	2,728,277	2,767,464	2,808,933		
1996	-	17,700	42,316	176,760	335,328	562,825	713,987	950,907	1,008,006	1,138,950	1,219,963	1,255,045	1,321,564	1,392,644	1,587,262	1,590,384	1,676,801	1,734,357	1,897,262	1,979,584			
1997	439	228,598	384,266	615,310	810,739	1,014,623	1,245,366	1,941,775	2,211,344	2,345,205	2,763,348	2,836,923	2,901,679	3,033,730	3,280,943	3,376,266	3,462,906	3,516,084	3,532,892				
1998	6,465	118,511	161,556	299,311	532,819	638,505	747,760	804,023	851,858	940,596	1,087,299	1,215,530	1,359,258	1,629,754	1,704,629	1,989,855	2,018,841	2,204,678					
1999	357,471	1,234,237	1,376,895	1,425,317	1,488,590	1,594,064	1,663,943	1,736,098	2,001,842	2,085,194	2,238,708	2,349,101	2,424,075	2,490,058	2,539,119	2,586,804	2,618,422						
2000	114,187	1,018,212	1,227,935	1,493,269	1,750,358	1,908,405	2,059,006	2,247,037	2,418,072	2,797,305	2,945,750	2,995,139	3,091,814	3,203,887	3,233,491	3,344,627							
2001	104,196	180,134	199,654	336,731	374,550	433,710	529,272	581,958	681,517	684,727	715,780	732,297	752,978	771,454	779,324								
2002	39,750	129,433	317,549	645,166	881,959	1,448,299	1,795,420	2,119,144	2,385,722	2,515,613	2,626,157	2,827,608	3,051,616	3,249,469									
2003	70,930	257,387	639,714	902,054	1,072,965	1,317,164	1,579,451	1,692,868	1,861,811	1,989,247	2,043,300	2,143,512	2,315,479										
2004	90,918	554,838	1,003,934	1,265,633	1,665,587	2,099,306	2,382,002	2,697,142	2,987,009	3,355,323	3,528,803	3,673,274											
2005	64,509	336,850	760,805	951,148	1,049,818	1,164,238	1,184,748	1,238,896	1,279,491	1,348,838	1,487,208												
2006	2,233	224,299	365,337	537,313	775,151	888,935	1,062,080	1,197,945	1,268,221	1,509,703													
2007	7,065	318,642	552,262	593,816	603,938	628,469	656,318	675,212	744,229														
2008	-	134,080	205,854	273,370	472,091	704,738	898,168	1,146,107															
2009	140,848	322,681	470,506	594,291	657,716	792,191	854,383																
2010	-	29,916	66,069	150,177	170,474	177,574																	
2011	34,886	69,855	141,373	264,278	450,244																		
2012	17,882	108,288	209,139	340,184																			
2013	-	82,788	168,015																				
2014	-	44,273																					
2015	15,667																						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	INC LDM <u>ULTIMATE</u>	PAID <u>LOSS</u>	INCURRED <u>LOSS</u>	CASE <u>RESERVE</u>	IBNR <u>RESERVE</u>	UNPAID <u>LOSS</u>
1994	3,148,007	2,729,017	3,116,839	387,822	31,168	418,991
1995	2,915,511	2,808,933	2,878,011	69,078	37,500	106,578
1996	2,386,859	1,979,584	2,344,436	364,852	42,423	407,274
1997	3,805,225	3,532,892	3,700,587	167,696	104,638	272,334
1998	2,956,627	2,204,678	2,857,819	653,142	98,807	751,949
1999	2,928,412	2,618,422	2,758,547	140,124	169,865	309,989
2000	4,031,726	3,344,627	3,772,662	428,035	259,064	687,100
2001	1,164,096	779,324	1,069,609	290,285	94,486	384,771
2002	4,587,161	3,249,469	4,119,846	870,377	467,314	1,337,691
2003	3,583,387	2,315,479	3,124,593	809,115	458,793	1,267,908
2004	4,961,432	3,673,274	4,200,197	526,923	761,235	1,288,158
2005	2,087,797	1,487,208	1,736,223	249,015	351,574	600,589
2006	2,911,014	1,509,703	2,347,051	837,348	563,963	1,401,311
2007	1,120,176	744,229	867,453	123,224	252,723	375,947
2008	2,316,320	1,146,107	1,699,293	553,187	617,026	1,170,213
2009	1,412,653	854,383	958,396	104,014	454,257	558,271
2010	347,280	177,574	220,645	43,071	126,635	169,706
2011	1,926,536	450,244	1,146,204	695,960	780,332	1,476,292
2012	1,075,344	340,184	556,332	216,148	519,011	735,160
2013	1,466,329	168,015	561,139	393,125	905,190	1,298,315
2014	962,873	44,273	320,413	276,140	642,460	918,600
2015	2,441,006	15,667	577,668	562,001	1,863,339	2,425,340
TOTAL	54,535,771	36,173,284	44,933,965	8,760,681	9,601,806	18,362,486

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Development of Losses to Ultimate

RY	Development Period in Months																					
	<u>12 - 24</u>	<u>24 - 36</u>	<u>36 - 48</u>	<u>48 - 60</u>	<u>60 - 72</u>	<u>72 - 84</u>	<u>84 - 96</u>	<u>96 - 108</u>	<u>108 - 120</u>	<u>120 - 132</u>	<u>132 - 144</u>	<u>144 - 156</u>	<u>156 - 168</u>	<u>168 - 180</u>	<u>180 - 192</u>	<u>192 - 204</u>	<u>204 - 216</u>	<u>216 - 228</u>	<u>228 - 240</u>	<u>240 - 252</u>	<u>252 - 264</u>	<u>264 - ULT</u>
1994	15.451	1.018	1.063	1.379	1.386	1.238	0.981	1.166	1.020	0.997	0.977	0.872	1.009	1.044	0.972	1.047	0.992	1.021	1.045	1.023	1.052	1.010
1995	1.245	0.927	1.155	0.988	1.043	1.069	1.204	0.975	1.001	1.145	0.992	1.010	1.043	0.997	1.033	1.005	1.012	0.983	1.008	1.000	1.003	1.010
1996	0.783	1.411	1.368	1.380	1.056	1.117	1.105	1.027	1.010	0.884	0.936	1.043	1.017	1.103	1.016	1.097	0.999	1.028	1.181	1.005	1.003	1.010
1997	1.860	1.230	1.198	1.413	1.137	1.171	1.111	1.037	1.003	1.089	1.016	0.971	1.084	1.034	1.005	1.005	1.002	1.014	1.010	1.005	1.003	1.010
1998	1.032	0.989	1.073	1.294	1.108	1.049	1.241	1.024	1.091	0.997	1.032	0.982	1.077	1.312	1.061	1.018	1.079	1.006	1.010	1.005	1.003	1.010
1999	1.034	1.090	1.052	1.039	1.011	0.999	1.185	1.022	1.029	1.061	1.028	0.999	0.956	1.005	0.996	0.999	1.026	1.006	1.010	1.005	1.003	1.010
2000	1.255	1.096	1.119	1.055	1.021	1.029	1.063	1.049	1.044	1.051	1.024	1.025	1.000	1.014	0.998	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2001	0.974	0.874	1.046	1.005	1.062	1.075	0.986	1.015	0.991	1.000	1.020	1.034	1.000	1.109	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2002	1.015	1.073	0.969	1.211	1.074	1.037	1.026	1.103	1.039	1.026	1.089	1.034	1.013	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2003	0.931	1.129	1.067	0.881	1.164	1.048	1.003	1.017	0.993	1.093	1.063	1.007	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2004	0.775	1.030	1.089	1.071	1.138	1.004	1.096	1.069	1.092	1.005	1.022	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2005	1.822	1.024	1.042	0.960	0.988	1.032	1.023	1.000	1.013	1.029	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2006	1.225	1.015	1.077	1.243	0.989	1.006	1.088	1.104	1.197	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2007	0.859	0.861	0.898	1.026	1.003	1.019	1.041	1.139	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2008	1.322	1.079	1.064	1.291	1.135	1.181	1.126	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2009	0.836	0.960	1.066	1.041	1.068	1.009	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2010	1.292	1.275	1.339	1.000	1.000	1.068	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2011	1.186	0.941	2.132	1.086	1.068	1.068	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2012	1.319	1.158	1.159	1.150	1.068	1.068	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2013	1.298	1.095	1.352	1.150	1.068	1.068	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2014	1.602	1.150	1.352	1.150	1.068	1.068	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010
2015	1.406	1.150	1.352	1.150	1.068	1.068	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003	1.010

RY	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>	<u>ULT</u>
1994	65,047	1,005,018	1,023,016	1,087,349	1,499,341	2,078,139	2,573,685	2,525,449	2,944,082	3,003,278	2,995,177	2,924,889	2,550,436	2,574,369	2,688,316	2,614,164	2,736,632	2,714,782	2,772,423	2,896,698	2,962,023	3,116,839	3,148,007
1995	1,345,826	1,675,949	1,553,606	1,794,446	1,772,905	1,849,070	1,976,684	2,379,084	2,318,512	2,321,479	2,657,629	2,635,614	2,661,105	2,775,105	2,766,065	2,856,864	2,870,975	2,906,668	2,855,886	2,879,342	2,878,011	2,886,645	2,915,511
1996	634,958	497,443	701,793	959,776	1,324,610	1,399,259	1,562,675	1,726,825	1,773,459	1,791,890	1,583,674	1,482,276	1,546,632	1,573,321	1,734,904	1,761,831	1,933,421	1,932,111	1,985,403	2,344,436	2,356,158	2,363,226	2,386,859
1997	502,583	935,032	1,150,245	1,378,150	1,947,336	2,214,227	2,591,866	2,880,119	2,986,984	2,997,120	3,265,114	3,318,830	3,221,107	3,492,440	3,610,025	3,626,882	3,643,635	3,651,096	3,700,587	3,737,593	3,756,281	3,767,550	3,805,225
1998	752,604	776,480	767,994	823,905	1,066,204	1,181,568	1,239,878	1,538,625	1,576,160	1,719,015	1,713,432	1,768,332	1,735,967	1,869,464	2,452,683	2,602,586	2,649,256	2,857,819	2,875,324	2,904,077	2,918,597	2,927,353	2,956,627
1999	1,712,508	1,770,639	1,930,013	2,030,050	2,108,225	2,131,472	2,129,530	2,523,004	2,577,625	2,653,444	2,814,130	2,892,443	2,889,189	2,760,814	2,773,420	2,761,910	2,758,547	2,830,547	2,847,885	2,876,363	2,890,745	2,899,417	2,928,412
2000	1,698,608	2,131,795	2,337,379	2,616,121	2,758,703	2,816,918	2,899,853	3,083,798	3,236,082	3,377,793	3,550,236	3,636,238	3,726,564	3,725,592	3,779,290	3,772,662	3,797,863	3,896,990	3,920,860	3,960,068	3,979,869	3,991,808	4,031,726
2001	903,017	879,435	768,432	803,398	807,374	857,373	921,857	909,006	922,903	914,707	914,707	932,652	964,133	964,133	1,069,609	1,089,295	1,096,571	1,125,193	1,132,085	1,143,406	1,149,123	1,152,570	1,164,096
2002	2,102,792	2,135,359	2,291,076	2,220,507	2,690,036	2,888,001	2,995,721	3,073,653	3,390,124	3,520,988	3,614,155	3,934,639	4,066,718	4,119,846	4,214,834	4,292,407	4,321,079	4,433,863	4,461,021	4,505,631	4,528,159	4,541,743	4,587,161
2003	2,188,346	2,037,946	2,300,432	2,453,915	2,162,593	2,516,184	2,638,215	2,645,656	2,689,485	2,669,996	2,918,787	3,102,946	3,124,593	3,218,331	3,292,533	3,353,131	3,375,529	3,463,633	3,484,849	3,519,697	3,537,296	3,547,907	3,583,387
2004	3,003,287	2,327,925	2,398,477	2,611,344	2,796,197	3,183,380	3,197,130	3,503,732	3,744,551	4,090,314	4,110,662	4,200,197	4,326,203	4,455,989	4,558,726	4,642,628	4,673,640	4,795,626	4,825,000	4,873,250	4,897,616	4,912,309	4,961,432
2005	855,094	1,558,332	1,595,861	1,662,314	1,596,329	1,577,303	1,627,822	1,664,850	1,665,200	1,687,550	1,736,223	1,767,465	1,820,489	1,875,104	1,918,336	1,953,643	1,966,693	2,018,025	2,030,386	2,050,690	2,060,943	2,067,126	2,087,797
2006	984,638	1,206,399	1,224,482	1,319,230	1,640,212	1,622,779	1,632,716	1,776,706	1,961,063	2,347,051	2,420,815	2,464,375	2,538,307	2,614,456	2,674,735	2,723,963	2,742,158	2,813,731	2,830,965	2,859,275	2,873,571	2,882,192	2,911,014
2007	1,049,030	901,475	776,584	697,298	715,705	717,904	731,520	761,453	867,453	903,159	931,544	948,306	976,756	1,006,058	1,029,254	1,048,197	1,055,199	1,082,740	1,089,372	1,100,266	1,105,767	1,109,085	1,120,176
2008	575,118	760,124	819,849	872,094	1,126,012	1,278,377	1,509,349	1,699,293	1,793,735	1,867,569	1,926,264	1,960,926	2,019,753	2,080,346	2,128,311	2,167,482	2,181,960	2,238,911	2,252,624	2,275,151	2,286,526	2,293,386	2,316,320
2009	997,723	834,376	800,801	853,741	888,872	949,649	958,396	1,036,348	1,093,945	1,138,974	1,174,770	1,195,909	1,231,786	1,268,740	1,297,992	1,321,881	1,330,711	1,365,444	1,373,807	1,387,545	1,394,483	1,398,667	1,412,653
2010	100,002	129,253	164,798	220,645	220,645	220,645	235,608	254,771	268,930	280,000	288,800	293,997	302,817	311,901	319,092	324,965	327,136	335,674	337,730	341,108	342,813	343,842	347,280
2011	443,503	526,138	494,996	1,055,259	1,146,204	1,224,027	1,307,033	1,413,341	1,491,890	1,553,300	1,602,118	1,630,946	1,679,875	1,730,271	1,770,164	1,802,744	1,814,785	1,862,153	1,873,559	1,892,294	1,901,756	1,907,461	1,926,536
2012	314,431	414,642	480,020	556,332	639,782	683,221	729,553	788,891	832,736	867,013	894,262	910,353	937,664	965,794	988,061	1,006,246	1,012,968	1,039,407	1,045,773	1,056,231	1,061,512	1,064,697	1,075,344
2013	395,006	512,612	561,139	758,610	872,401	931																	

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Selection of Loss Development Factors

RY	Development Period in Months																				
	<u>12 - 24</u>	<u>24 - 36</u>	<u>36 - 48</u>	<u>48 - 60</u>	<u>60 - 72</u>	<u>72 - 84</u>	<u>84 - 96</u>	<u>96 - 108</u>	<u>108 - 120</u>	<u>120 - 132</u>	<u>132 - 144</u>	<u>144 - 156</u>	<u>156 - 168</u>	<u>168 - 180</u>	<u>180 - 192</u>	<u>192 - 204</u>	<u>204 - 216</u>	<u>216 - 228</u>	<u>228 - 240</u>	<u>240 - 252</u>	<u>252 - 264</u>
1994	15.451	1.018	1.063	1.379	1.386	1.238	0.981	1.166	1.020	0.997	0.977	0.872	1.009	1.044	0.972	1.047	0.992	1.021	1.045	1.023	1.052
1995	1.245	0.927	1.155	0.988	1.043	1.069	1.204	0.975	1.001	1.145	0.992	1.010	1.043	0.997	1.033	1.005	1.012	0.983	1.008	1.000	
1996	0.783	1.411	1.368	1.380	1.056	1.117	1.105	1.027	1.010	0.884	0.936	1.043	1.017	1.103	1.016	1.097	0.999	1.028	1.181		
1997	1.860	1.230	1.198	1.413	1.137	1.171	1.111	1.037	1.003	1.089	1.016	0.971	1.084	1.034	1.005	1.005	1.002	1.014			
1998	1.032	0.989	1.073	1.294	1.108	1.049	1.241	1.024	1.091	0.997	1.032	0.982	1.077	1.312	1.061	1.018	1.079				
1999	1.034	1.090	1.052	1.039	1.011	0.999	1.185	1.022	1.029	1.061	1.028	0.999	0.956	1.005	0.996	0.999					
2000	1.255	1.096	1.119	1.055	1.021	1.029	1.063	1.049	1.044	1.051	1.024	1.025	1.000	1.014	0.998						
2001	0.974	0.874	1.046	1.005	1.062	1.075	0.986	1.015	0.991	1.000	1.020	1.034	1.000	1.109							
2002	1.015	1.073	0.969	1.211	1.074	1.037	1.026	1.103	1.039	1.026	1.089	1.034	1.013								
2003	0.931	1.129	1.067	0.881	1.164	1.048	1.003	1.017	0.993	1.093	1.063	1.007									
2004	0.775	1.030	1.089	1.071	1.138	1.004	1.096	1.069	1.092	1.005	1.022										
2005	1.822	1.024	1.042	0.960	0.988	1.032	1.023	1.000	1.013	1.029											
2006	1.225	1.015	1.077	1.243	0.989	1.006	1.088	1.104	1.197												
2007	0.859	0.861	0.898	1.026	1.003	1.019	1.041	1.139													
2008	1.322	1.079	1.064	1.291	1.135	1.181	1.126														
2009	0.836	0.960	1.066	1.041	1.068	1.009															
2010	1.292	1.275	1.339	1.000	1.000																
2011	1.186	0.941	2.132	1.086																	
2012	1.319	1.158	1.159																		
2013	1.298	1.095																			
2014	1.602																				
VOL WTD 3	1.372	1.057	1.607	1.059	1.095	1.086	1.094	1.069	1.102	1.038	1.056	1.023	1.006	1.023	1.015	1.007	1.026	1.006	1.067	1.011	1.052
VOL WTD 5	1.310	1.035	1.289	1.108	1.043	1.051	1.081	1.056	1.064	1.032	1.046	1.019	1.004	1.068	1.012	1.018	1.017	1.010	1.067	1.011	1.052
VOL WTD ALL	1.121	1.049	1.103	1.110	1.087	1.066	1.081	1.054	1.041	1.037	1.023	0.995	1.021	1.058	1.010	1.023	1.017	1.010	1.067	1.011	1.052
ARITH 3	1.406	1.064	1.543	1.042	1.068	1.070	1.085	1.081	1.101	1.042	1.058	1.025	1.004	1.043	1.018	1.007	1.027	1.008	1.078	1.011	1.052
ARITH 5	1.339	1.086	1.352	1.089	1.039	1.049	1.075	1.066	1.067	1.031	1.043	1.020	1.009	1.095	1.015	1.025	1.017	1.011	1.078	1.011	1.052
ARITH ALL	1.863	1.064	1.157	1.131	1.081	1.068	1.085	1.053	1.040	1.031	1.018	0.998	1.022	1.077	1.012	1.028	1.017	1.011	1.078	1.011	1.052
5 YR HI LO	1.303	1.071	1.188	1.051	1.024	1.020	1.075	1.063	1.048	1.020	1.036	1.022	1.004	1.052	1.006	1.009	1.005	1.017	1.045	NA	NA
SELECTED	1.406	1.150	1.352	1.150	1.068	1.068	1.081	1.056	1.041	1.031	1.018	1.030	1.030	1.023	1.018	1.007	1.026	1.006	1.010	1.005	1.003
																					<u>TAIL</u> 1.010

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	65,047	1,005,018	1,023,016	1,087,349	1,499,341	2,078,139	2,573,685	2,525,449	2,944,082	3,003,278	2,995,177	2,924,889	2,550,436	2,574,369	2,688,316	2,614,164	2,736,632	2,714,782	2,772,423	2,896,698	2,962,023	3,116,839
1995	1,345,826	1,675,949	1,553,606	1,794,446	1,772,905	1,849,070	1,976,684	2,379,084	2,318,512	2,321,479	2,657,629	2,635,614	2,661,105	2,775,105	2,766,065	2,856,864	2,870,975	2,906,668	2,855,886	2,879,342	2,878,011	
1996	634,958	497,443	701,793	959,776	1,324,610	1,399,259	1,562,675	1,726,825	1,773,459	1,791,890	1,583,674	1,482,276	1,546,632	1,573,321	1,734,904	1,761,831	1,933,421	1,932,111	1,985,403	2,344,436		
1997	502,583	935,032	1,150,245	1,378,150	1,947,336	2,214,227	2,591,866	2,880,119	2,986,984	2,997,120	3,265,114	3,318,830	3,221,107	3,492,440	3,610,025	3,626,882	3,643,635	3,651,096	3,700,587			
1998	752,604	776,480	767,994	823,905	1,066,204	1,181,568	1,239,878	1,538,625	1,576,160	1,719,015	1,713,432	1,768,332	1,735,967	1,869,464	2,452,683	2,602,586	2,649,256	2,857,819				
1999	1,712,508	1,770,639	1,930,013	2,030,050	2,108,225	2,131,472	2,129,530	2,523,004	2,577,625	2,653,444	2,814,130	2,892,443	2,889,189	2,760,814	2,773,420	2,761,910	2,758,547					
2000	1,698,608	2,131,795	2,337,379	2,616,121	2,758,703	2,816,918	2,899,853	3,083,798	3,236,082	3,377,793	3,550,236	3,636,238	3,726,564	3,725,592	3,779,290	3,772,662						
2001	903,017	879,435	768,432	803,398	807,374	857,373	921,857	909,006	922,903	914,707	914,707	932,652	964,133	964,133	1,069,609							
2002	2,102,792	2,135,359	2,291,076	2,220,507	2,690,036	2,888,001	2,995,721	3,073,653	3,390,124	3,520,988	3,614,155	3,934,639	4,066,718	4,119,846								
2003	2,188,346	2,037,946	2,300,432	2,453,915	2,162,593	2,516,184	2,638,215	2,645,656	2,689,485	2,669,996	2,918,787	3,102,946	3,124,593									
2004	3,003,287	2,327,925	2,398,477	2,611,344	2,796,197	3,183,380	3,197,130	3,503,732	3,744,551	4,090,314	4,110,662	4,200,197										
2005	855,094	1,558,332	1,595,861	1,662,314	1,596,329	1,577,303	1,627,822	1,664,850	1,665,200	1,687,550	1,736,223											
2006	984,638	1,206,399	1,224,482	1,319,230	1,640,212	1,622,779	1,632,716	1,776,706	1,961,063	2,347,051												
2007	1,049,030	901,475	776,584	697,298	715,705	717,904	731,520	761,453	867,453													
2008	575,118	760,124	819,849	872,094	1,126,012	1,278,377	1,509,349	1,699,293														
2009	997,723	834,376	800,801	853,741	888,872	949,649	958,396															
2010	100,002	129,253	164,798	220,645	220,645	220,645																
2011	443,503	526,138	494,996	1,055,259	1,146,204																	
2012	314,431	414,642	480,020	556,332																		
2013	395,006	512,612	561,139																			
2014	200,006	320,413																				
2015	577,668																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Losses Reserves

RY	Development in Months																						
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	
1994	65,047	937,462	917,254	862,904	1,176,620	1,484,248	1,846,582	1,551,488	1,720,699	1,322,744	1,259,026	1,141,745	649,315	588,395	579,533	384,518	383,454	298,190	271,598	321,234	344,305	387,822	
1995	1,288,680	1,461,088	1,180,996	1,200,882	1,083,859	1,069,919	988,309	1,013,399	835,193	700,273	589,520	439,895	353,616	390,455	292,028	302,744	263,145	242,736	127,609	111,878	69,078		
1996	634,958	479,743	659,477	783,016	989,281	836,434	848,688	775,918	765,454	652,940	363,711	227,231	225,067	180,677	147,642	171,447	256,620	197,754	88,141	364,852			
1997	502,144	706,434	765,979	762,840	1,136,597	1,199,603	1,346,500	938,344	775,640	651,916	501,765	481,907	319,428	458,710	329,082	250,616	180,729	135,011	167,696				
1998	746,139	657,969	606,438	524,593	533,385	543,063	492,118	734,601	724,302	778,419	626,133	552,801	376,709	239,710	748,053	612,731	630,416	653,142					
1999	1,355,037	536,402	553,118	604,733	619,635	537,408	465,587	786,906	575,783	568,249	575,422	543,342	465,114	270,756	234,301	175,106	140,124						
2000	1,584,421	1,113,583	1,109,444	1,122,852	1,008,345	908,512	840,848	836,761	818,010	580,488	604,486	641,099	634,750	521,706	545,799	428,035							
2001	798,821	699,302	568,779	466,666	432,824	423,663	392,585	327,048	241,385	229,980	198,927	200,355	211,155	192,679	290,285								
2002	2,063,042	2,005,926	1,973,527	1,575,340	1,808,077	1,439,703	1,200,301	954,509	1,004,402	1,005,374	987,998	1,107,030	1,015,103	870,377									
2003	2,117,416	1,780,558	1,660,718	1,551,861	1,089,627	1,199,020	1,058,764	952,788	827,673	680,749	875,487	959,434	809,115										
2004	2,912,369	1,773,087	1,394,543	1,345,711	1,130,610	1,084,074	815,128	806,590	757,542	734,992	581,859	526,923											
2005	790,585	1,221,482	835,056	711,167	546,511	413,065	443,074	425,953	385,710	338,712	249,015												
2006	982,405	982,099	859,145	781,917	865,061	733,845	570,636	578,761	692,842	837,348													
2007	1,041,965	582,833	224,322	103,482	111,767	89,435	75,202	86,241	123,224														
2008	575,118	626,044	613,995	598,724	653,921	573,639	611,181	553,187															
2009	856,875	511,695	330,294	259,450	231,156	157,458	104,014																
2010	100,002	99,336	98,729	70,468	50,171	43,071																	
2011	408,617	456,283	353,623	790,981	695,960																		
2012	296,549	306,354	270,882	216,148																			
2013	395,006	429,823	393,125																				
2014	200,006	276,140																					
2015	562,001																						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Ratio of Paid to Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	0%	7%	10%	21%	22%	29%	28%	39%	42%	56%	58%	61%	75%	77%	78%	85%	86%	89%	90%	89%	88%	88%
1995	4%	13%	24%	33%	39%	42%	50%	57%	64%	70%	78%	83%	87%	86%	89%	89%	91%	92%	96%	96%	98%	
1996	0%	4%	6%	18%	25%	40%	46%	55%	57%	64%	77%	85%	85%	89%	91%	90%	87%	90%	96%	84%		
1997	0%	24%	33%	45%	42%	46%	48%	67%	74%	78%	85%	85%	90%	87%	91%	93%	95%	96%	95%			
1998	1%	15%	21%	36%	50%	54%	60%	52%	54%	55%	63%	69%	78%	87%	70%	76%	76%	77%				
1999	21%	70%	71%	70%	71%	75%	78%	69%	78%	79%	80%	81%	84%	90%	92%	94%	95%					
2000	7%	48%	53%	57%	63%	68%	71%	73%	75%	83%	83%	82%	83%	86%	86%	89%						
2001	12%	20%	26%	42%	46%	51%	57%	64%	74%	75%	78%	79%	78%	80%	73%							
2002	2%	6%	14%	29%	33%	50%	60%	69%	70%	71%	73%	72%	75%	79%								
2003	3%	13%	28%	37%	50%	52%	60%	64%	69%	75%	70%	69%	74%	80%								
2004	3%	24%	42%	48%	60%	66%	75%	77%	80%	82%	86%	87%										
2005	8%	22%	48%	57%	66%	74%	73%	74%	77%	80%	86%											
2006	0%	19%	30%	41%	47%	55%	65%	67%	65%	64%												
2007	1%	35%	71%	85%	84%	88%	90%	89%	86%													
2008	0%	18%	25%	31%	42%	55%	60%	67%														
2009	14%	39%	59%	70%	74%	83%	89%															
2010	0%	23%	40%	68%	77%	80%																
2011	8%	13%		29%	39%																	
2012	6%	26%		61%																		
2013	0%	16%	30%																			
2014	0%	14%																				
2015	3%																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance UST - Other
Determination of Pure Premium

(1) <u>RY</u>	(2) PAID LDM <u>ULTIMATE</u>	(3) INC LDM <u>ULTIMATE</u>	(4) SELECTED <u>ULTIMATE</u>	(5) POLICIES <u>IN FORCE</u>	(6) PURE <u>PREMIUM</u>
2008	2,479,482	2,316,320	2,397,901	2,664	900
2009	2,088,641	1,412,653	1,750,647	2,662	658
2010	500,096	347,280	347,280	2,622	132
2011	1,555,180	1,926,536	1,926,536	2,623	734
2012	1,461,179	1,075,344	1,075,344	2,617	411
2013	979,901	1,466,329	1,466,329	2,603	563
2014	400,948	962,873	962,873	2,573	374
2015	680,256	2,441,006	2,441,006	2,530	965
TOTAL	10,145,683	11,948,342	12,367,917	20,894	592

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT UNPAID	(8) EXPECTED UNPAID	(9) PAID LOSSES	(10) INDICATED ULTIMATE	(11) INCURRED LOSSES	(12) IBNR RESERVE	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
2008	2,664	900	1,034	512	1,364,887	53.8%	733,987	1,146,107	1,880,093	1,699,293	180,800	553,187	706
2009	2,662	658	741	523	1,391,139	59.1%	822,078	854,383	1,676,460	958,396	718,064	104,014	630
2010	2,622	132	146	533	1,397,640	64.5%	901,367	177,574	1,078,941	220,645	858,296	43,071	411
2011	2,623	734	795	544	1,426,137	71.0%	1,013,252	450,244	1,463,496	1,146,204	317,292	695,960	558
2012	2,617	411	436	555	1,451,332	76.7%	1,113,441	340,184	1,453,625	556,332	897,292	216,148	555
2013	2,603	563	586	566	1,472,439	82.9%	1,219,974	168,015	1,387,988	561,139	826,849	393,125	533
2014	2,573	374	382	577	1,484,579	89.0%	1,320,651	44,273	1,364,923	320,413	1,044,510	276,140	530
2015	2,530	965	965	589	1,488,964	97.7%	1,454,672	15,667	1,470,339	577,668	892,671	562,001	581
TOTAL	20,894				11,477,116		8,579,421	3,196,445	11,775,866	6,040,091	5,735,775	2,843,646	564

<u>Pure Premium Selection</u>			Trend =	1.020
3-Year Average x Latest		468		
5-Year Average x Latest		469		
All Year Average x Latest		589		
Selected Pure Premium		589		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POLICIES IN FORCE	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT IBNR	EXPECTED IBNR	INCURRED LOSSES	INDICATED ULTIMATE	PAID LOSSES	UNPAID LOSS	CASE RESERVE	ULTIMATE PURE PREM
2008	2,664	900	1,034	512	1,364,887	26.6%	363,582	1,699,293	2,062,875	1,146,107	916,768	553,187	774
2009	2,662	658	741	523	1,391,139	32.2%	447,339	958,396	1,405,735	854,383	551,352	104,014	528
2010	2,622	132	146	533	1,397,640	36.5%	509,648	220,645	730,293	177,574	552,719	43,071	279
2011	2,623	734	795	544	1,426,137	40.5%	577,648	1,146,204	1,723,852	450,244	1,273,608	695,960	657
2012	2,617	411	436	555	1,451,332	48.3%	700,481	556,332	1,256,813	340,184	916,630	216,148	480
2013	2,603	563	586	566	1,472,439	61.7%	908,962	561,139	1,470,101	168,015	1,302,086	393,125	565
2014	2,573	374	382	577	1,484,579	66.7%	990,559	320,413	1,310,972	44,273	1,266,699	276,140	510
2015	2,530	965	965	589	1,488,964	76.3%	1,136,598	577,668	1,714,266	15,667	1,698,599	562,001	678
TOTAL	20,894				11,477,116		5,634,816	6,040,091	11,674,907	3,196,445	8,478,462	2,843,646	559

<u>Pure Premium Selection</u>		Trend =	1.020
3-Year Average x Latest	468		
5-Year Average x Latest	469		
All Year Average x Latest	589		
Selected Pure Premium	589		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Summary of Paid Development Method

(1) <u>RY</u>	(2) <u>PAID LDM ULTIMATE</u>	(3) <u>SELECTED ULTIMATE</u>	(4) <u>PAID LOSS</u>	(5) <u>INCURRED LOSS</u>	(6) <u>CASE RESERVE</u>	(7) <u>IBNR RESERVE</u>
1994	-	-	-	-	-	-
1995	127,836	114,027	114,027	114,027	-	-
1996	64,455,134	65,977,885	56,923,526	65,977,885	9,054,360	-
1997	8,840,840	8,840,840	7,674,403	8,506,853	832,451	333,987
1998	18,986,604	18,986,604	16,158,393	18,556,400	2,398,007	430,203
1999	8,248,515	8,248,515	6,893,063	7,958,496	1,065,433	290,019
2000	14,093,780	14,208,531	11,608,205	14,208,531	2,600,326	-
2001	2,361,209	2,580,388	1,904,981	2,580,388	675,407	-
2002	2,807,876	3,114,120	2,204,070	3,114,120	910,051	-
2003	1,027,813	1,121,173	784,155	1,121,173	337,018	-
2004	1,890,243	1,890,243	1,384,142	1,770,349	386,207	119,894
2005	2,555,668	2,744,820	1,773,966	2,744,820	970,854	-
2006	449,975	450,938	300,938	450,938	150,000	-
2007	1,459,801	1,459,801	916,913	1,312,571	395,658	147,230
2008	949,030	949,030	562,296	660,233	97,937	288,797
2009	1,055,946	1,055,946	592,613	798,503	205,889	257,443
2010	718,422	889,689	353,987	889,689	535,702	-
2011	1,837,311	1,837,311	752,341	1,691,617	939,276	145,694
2012	704,084	704,084	213,486	484,868	271,382	219,215
2013	1,271,645	1,271,645	340,269	873,521	533,252	398,124
2014	1,654,109	1,654,109	250,466	837,531	587,065	816,578
2015	-	247,003	-	247,003	247,003	-
TOTAL	135,495,841	138,346,703	111,706,239	134,899,517	23,193,279	3,447,185

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Development of Losses to Ultimate

RY	Development Period in Months																204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204						
1994																						1.110
1995								9.287	1.127	1.000	1.241	1.000	1.041	1.014	1.069	1.000	1.000	1.000	1.000	1.010	1.110	
1996	20,724	3,266	2,407	2,036	1,409	1,264	1,161	1,143	1,103	1,082	1,072	1,051	1,076	1,061	1,043	1,032	1,031	1,021	1,035	1,010	1,010	1,110
1997	16,836	2,049	1,602	1,266	1,153	1,071	1,019	1,041	1,041	1,021	1,095	1,027	1,040	1,046	1,018	1,013	1,006	1,012	1,017	1,010	1,010	1,110
1998	12,647	2,010	1,342	1,146	1,074	1,053	1,029	1,071	1,035	1,080	1,051	1,056	1,031	1,025	1,017	1,018	1,019	1,020	1,017	1,010	1,010	1,110
1999	4,821	1,254	1,276	1,187	1,132	1,024	1,044	1,039	1,066	1,103	1,056	1,032	1,019	1,020	1,016	1,012	1,018	1,020	1,017	1,010	1,010	1,110
2000	2,319	1,409	1,202	1,169	1,115	1,077	1,140	1,034	1,054	1,044	1,028	1,027	1,031	1,030	1,030	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2001		3,234	1,268	1,346	1,120	1,179	1,166	1,155	1,112	1,047	1,052	1,037	1,017	1,018	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2002	10,139	2,111	1,125	1,147	1,072	1,092	1,039	1,043	1,094	1,033	1,046	1,078	1,043	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2003	2,817	1,576	1,195	1,149	1,129	1,151	1,063	1,049	1,089	1,032	1,076	1,029	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2004	4,773	1,326	1,368	1,217	1,136	1,111	1,059	1,037	1,046	1,032	1,043	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2005	3,426	1,446	1,590	1,161	1,212	1,132	1,037	1,039	1,095	1,041	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2006	4,337	3,865	1,419	1,348	1,051	1,042	1,000	1,000	1,000	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2007	41,628	3,049	1,218	1,215	1,257	1,101	1,081	1,141	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2008	4,194	1,048	1,204	1,247	1,256	1,030	1,086	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2009	3,022	1,570	1,139	1,055	1,015	1,097	1,056	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2010		1,835	1,081	1,363	1,047	1,139	1,056	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2011	2,766	1,844	1,117	1,100	1,203	1,139	1,056	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2012	13,380	1,407	1,134	1,350	1,203	1,139	1,056	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2013	5,111	1,534	1,133	1,350	1,203	1,139	1,056	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2014	13,888	1,767	1,133	1,350	1,203	1,139	1,056	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110
2015	5,552	1,767	1,133	1,350	1,203	1,139	1,056	1,060	1,065	1,038	1,055	1,042	1,029	1,028	1,021	1,015	1,018	1,020	1,017	1,010	1,010	1,110

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	7,781	72,262	81,424	81,424	101,034	101,034	105,196	106,705	114,027	114,027	114,027	114,027	114,027	114,027	115,167	127,836
1996	40,315	835,499	2,728,718	6,568,905	13,373,754	18,845,618	23,820,837	27,664,147	31,626,348	34,871,004	37,747,448	40,455,899	42,534,558	45,765,782	48,568,937	50,658,185	52,285,341	53,882,728	55,011,326	56,923,526	57,492,761	58,067,688	64,455,134
1997	61,400	1,033,729	2,118,455	3,394,699	4,296,273	4,951,705	5,303,380	5,403,843	5,623,039	5,851,196	5,972,517	6,542,594	6,722,493	6,993,563	7,314,218	7,443,710	7,541,990	7,586,859	7,674,403	7,807,784	7,885,862	7,964,721	8,840,840
1998	239,795	3,032,700	6,094,264	8,178,370	9,375,140	10,068,463	10,602,282	10,912,410	11,684,792	12,096,844	13,060,306	13,727,870	14,499,065	14,951,449	15,319,415	15,575,277	15,862,219	16,158,393	16,481,561	16,768,011	16,935,691	17,105,048	18,986,604
1999	436,835	2,105,831	2,641,761	3,370,046	3,998,601	4,527,780	4,638,276	4,843,173	5,032,565	5,366,728	5,917,688	6,249,511	6,450,553	6,574,295	6,705,452	6,809,966	6,893,063	7,019,831	7,160,228	7,284,673	7,357,519	7,431,095	8,248,515
2000	1,404,622	3,256,938	4,590,454	5,519,248	6,451,995	7,193,747	7,750,786	8,836,291	9,135,094	9,627,642	10,050,268	10,330,492	10,607,398	10,934,896	11,265,746	11,608,205	11,777,794	11,994,396	12,234,284	12,446,916	12,571,385	12,697,099	14,093,780
2001	-	147,472	476,981	604,628	813,801	911,192	1,074,243	1,252,777	1,447,406	1,609,378	1,685,756	1,773,480	1,839,082	1,870,679	1,904,981	1,944,787	1,973,199	2,009,488	2,049,677	2,085,301	2,106,154	2,127,215	2,361,209
2002	47,379	480,361	1,014,084	1,140,741	1,308,579	1,402,608	1,531,018	1,591,392	1,659,124	1,814,667	1,875,002	1,960,925	2,114,181	2,204,070	2,265,344	2,312,680	2,346,467	2,389,620	2,437,412	2,479,775	2,504,573	2,529,618	2,807,876
2003	71,422	201,172	317,027	378,728	435,080	491,064	565,402	600,804	630,373	686,253	708,407	762,255	784,155	806,791	829,221	846,548	858,915	874,712	892,206	907,712	916,789	925,957	1,027,813
2004	84,160	401,722	532,740	728,973	887,261	1,008,297	1,120,106	1,186,075	1,229,393	1,286,274	1,327,154	1,384,142	1,442,133	1,483,764	1,525,014	1,556,880	1,579,625	1,608,676	1,640,849	1,669,367	1,686,061	1,702,922	1,890,243
2005	115,085	394,303	570,217	906,812	1,053,062	1,275,950	1,444,651	1,497,871	1,556,506	1,704,631	1,773,966	1,871,403	1,949,809	2,006,096	2,061,868	2,104,951	2,135,703	2,174,980	2,218,480	2,257,037	2,279,608	2,302,404	2,555,668
2006	8,574	37,183	143,721	203,989	274,938	288,877	300,938	300,938	300,938	300,938	312,341	329,497	343,302	353,212	363,032	370,618	376,032	382,948	390,607	397,395	401,369	405,383	449,975
2007	2,861	119,076	363,029	442,068	537,077	674,872	743,159	803,483	916,913	976,298	1,013,292	1,068,948	1,113,733	1,145,885	1,177,741	1,202,351	1,219,916	1,242,351	1,267,198	1,289,222	1,302,115	1,315,136	1,459,801
2008	60,614	254,231	266,381	320,759	400,143	502,530	517,750	562,296	596,094	634,700	658,750	694,933	724,048	744,950	765,660	781,659	793,079	807,664	823,817	838,135	846,517	854,982	949,030
2009	93,362	282,127	442,836	504,349	532,197	540,101	592,613	625,643	663,248	706,204	732,964	773,223	805,618	828,875	851,918	869,720	882,426	898,654	916,627	932,558	941,884	951,303	1,055,946
2010	-	125,006	229,422	248,031	338,015	353,987	403,190	425,662	451,247	480,472	498,678	526,069	548,110	563,932	579,610	591,721	600,366	611,407	623,635	634,474	640,819	647,227	718,422
2011	120,046	332,076	612,202	684,075	752,341	905,296	1,031,128	1,088,599	1,154,030	1,228,772	1,275,333	1,345,382	1,401,749	1,442,215	1,482,310	1,513,283	1,535,392	1,563,628	1,594,901	1,622,621	1,638,847	1,655,235	1,837,311
2012	9,999	133,785	188,289	213,486	288,308	346,922	395,143	417,167	442,241	470,883	488,726	515,570	537,170	552,677	568,042	579,912	588,384	599,205	611,189	621,811	628,029	634,310	704,084
2013	43,387	221,753	340,269	385,577	520,712	626,576	713,667	753,444	798,731	850,461	882,687	931,169	970,183	998,190	1,025,940	1,047,378	1,062,679	1,082,223	1,103,867	1,123,053	1,134,283	1,145,626	1,271,645
2014	18,035	250,466	442,610	501,544	677,324	815,027	928,312	980,053	1,038,960	1,106,249	1,148,167	1,211,231	1,261,978	1,298,409	1,334,506	1,362,391	1,382,295	1,407,716	1,435,870	1,460,826	1,475,434	1,490,189	1,654,109
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994																					
1995								9.287	1.127	1.000	1.241	1.000	1.041	1.014	1.069	1.000	1.000	1.000	1.000	1.000	1.000
1996	20.724	3.266	2.407	2.036	1.409	1.264	1.161	1.143	1.103	1.082	1.072	1.051	1.076	1.061	1.043	1.032	1.031	1.021	1.035		
1997	16.836	2.049	1.602	1.266	1.153	1.071	1.019	1.041	1.041	1.021	1.095	1.027	1.040	1.046	1.018	1.013	1.006	1.012			
1998	12.647	2.010	1.342	1.146	1.074	1.053	1.029	1.071	1.035	1.080	1.051	1.056	1.031	1.025	1.017	1.018	1.019				
1999	4.821	1.254	1.276	1.187	1.132	1.024	1.044	1.039	1.066	1.103	1.056	1.032	1.019	1.020	1.016	1.012					
2000	2.319	1.409	1.202	1.169	1.115	1.077	1.140	1.034	1.054	1.044	1.028	1.027	1.031	1.030	1.030						
2001		3.234	1.268	1.346	1.120	1.179	1.166	1.155	1.112	1.047	1.052	1.037	1.017	1.018							
2002	10.139	2.111	1.125	1.147	1.072	1.092	1.039	1.043	1.094	1.033	1.046	1.078	1.043								
2003	2.817	1.576	1.195	1.149	1.129	1.151	1.063	1.049	1.089	1.032	1.076	1.029									
2004	4.773	1.326	1.368	1.217	1.136	1.111	1.059	1.037	1.046	1.032	1.043										
2005	3.426	1.446	1.590	1.161	1.212	1.132	1.037	1.039	1.095	1.041											
2006	4.337	3.865	1.419	1.348	1.051	1.042	1.000	1.000	1.000												
2007	41.628	3.049	1.218	1.215	1.257	1.101	1.081	1.141													
2008	4.194	1.048	1.204	1.247	1.256	1.030	1.086														
2009	3.022	1.570	1.139	1.055	1.015	1.097															
2010		1.835	1.081	1.363	1.047																
2011	2.766	1.844	1.117	1.100																	
2012	13.380	1.407	1.134																		
2013	5.111	1.534																			
2014	13.888																				
VOL WTD 3	8.485	1.659	1.112	1.130	1.099	1.079	1.067	1.066	1.066	1.036	1.050	1.054	1.031	1.026	1.021	1.016	1.026	1.020	1.035	1.000	NA
VOL WTD 5	5.552	1.656	1.133	1.164	1.134	1.097	1.054	1.056	1.077	1.038	1.036	1.034	1.029	1.029	1.033	1.026	1.026	1.020	1.035	1.000	NA
VOL WTD ALL	4.679	1.767	1.432	1.350	1.203	1.139	1.102	1.093	1.076	1.069	1.062	1.046	1.053	1.046	1.033	1.026	1.026	1.020	1.035	1.000	NA
ARITH 3	10.793	1.595	1.111	1.173	1.106	1.076	1.056	1.060	1.047	1.035	1.055	1.048	1.030	1.023	1.021	1.015	1.018	1.011	1.017	1.000	NA
ARITH 5	8.786	1.638	1.135	1.196	1.125	1.081	1.053	1.053	1.065	1.037	1.049	1.041	1.028	1.028	1.025	1.015	1.014	1.011	1.017	1.000	NA
ARITH ALL	9.813	1.991	1.335	1.259	1.145	1.102	1.071	1.698	1.072	1.047	1.076	1.038	1.037	1.031	1.032	1.015	1.014	1.011	1.017	1.000	NA
5 YR HI LO	9.245	1.646	1.130	1.187	1.118	1.080	1.059	1.042	1.076	1.035	1.047	1.033	1.027	1.025	1.022	1.015	1.012	1.012	NA	NA	NA
SELECTED	5.552	1.767	1.133	1.350	1.203	1.139	1.056	1.060	1.065	1.038	1.055	1.042	1.029	1.028	1.021	1.015	1.018	1.020	1.017	1.010	1.010
																					<u>TAIL</u> 1.110

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Paid Losses

RY	Development in Months																						
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1995	-	-	-	-	-	-	-	7,781	72,262	81,424	81,424	101,034	101,034	105,196	106,705	114,027	114,027	114,027	114,027	114,027	114,027	114,027	
1996	40,315	835,499	2,728,718	6,568,905	13,373,754	18,845,618	23,820,837	27,664,147	31,626,348	34,871,004	37,747,448	40,455,899	42,534,558	45,765,782	48,568,937	50,658,185	52,285,341	53,882,728	55,011,326	56,923,526			
1997	61,400	1,033,729	2,118,455	3,394,699	4,296,273	4,951,705	5,303,380	5,403,843	5,623,039	5,851,196	5,972,517	6,542,594	6,722,493	6,993,563	7,314,218	7,443,710	7,541,990	7,586,859	7,674,403				
1998	239,795	3,032,700	6,094,264	8,178,370	9,375,140	10,068,463	10,602,282	10,912,410	11,684,792	12,096,844	13,060,306	13,727,870	14,499,065	14,951,449	15,319,415	15,575,277	15,862,219	16,158,393					
1999	436,835	2,105,831	2,641,761	3,370,046	3,998,601	4,527,780	4,638,276	4,843,173	5,032,565	5,366,728	5,917,688	6,249,511	6,450,553	6,574,295	6,705,452	6,809,966	6,893,063						
2000	1,404,622	3,256,938	4,590,454	5,519,248	6,451,995	7,193,747	7,750,786	8,836,291	9,135,094	9,627,642	10,050,268	10,330,492	10,607,398	10,934,896	11,265,746	11,608,205							
2001	-	147,472	476,981	604,628	813,801	911,192	1,074,243	1,252,777	1,447,406	1,609,378	1,685,756	1,773,480	1,839,082	1,870,679	1,904,981								
2002	47,379	480,361	1,014,084	1,140,741	1,308,579	1,402,608	1,531,018	1,591,392	1,659,124	1,814,667	1,875,002	1,960,925	2,114,181	2,204,070									
2003	71,422	201,172	317,027	378,728	435,080	491,064	565,402	600,804	630,373	686,253	708,407	762,255	784,155										
2004	84,160	401,722	532,740	728,973	887,261	1,008,297	1,120,106	1,186,075	1,229,393	1,286,274	1,327,154	1,384,142											
2005	115,085	394,303	570,217	906,812	1,053,062	1,275,950	1,444,651	1,497,871	1,556,506	1,704,631	1,773,966												
2006	8,574	37,183	143,721	203,989	274,938	288,877	300,938	300,938	300,938	300,938													
2007	2,861	119,076	363,029	442,068	537,077	674,872	743,159	803,483	916,913														
2008	60,614	254,231	266,381	320,759	400,143	502,530	517,750	562,296															
2009	93,362	282,127	442,836	504,349	532,197	540,101	592,613																
2010	-	125,006	229,422	248,031	338,015	353,987																	
2011	120,046	332,076	612,202	684,075	752,341																		
2012	9,999	133,785	188,289	213,486																			
2013	43,387	221,753	340,269																				
2014	18,035	250,466																					
2015	-																						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	65,977,885	56,923,526	65,977,885	9,054,360	-	9,054,360
1997	8,506,853	7,674,403	8,506,853	832,451	-	832,451
1998	18,561,896	16,158,393	18,556,400	2,398,007	5,496	2,403,503
1999	8,163,003	6,893,063	7,958,496	1,065,433	204,507	1,269,941
2000	14,588,469	11,608,205	14,208,531	2,600,326	379,937	2,980,264
2001	2,681,652	1,904,981	2,580,388	675,407	101,264	776,671
2002	3,324,040	2,204,070	3,114,120	910,051	209,920	1,119,971
2003	1,210,436	784,155	1,121,173	337,018	89,263	426,282
2004	1,952,430	1,384,142	1,770,349	386,207	182,082	568,289
2005	3,081,635	1,773,966	2,744,820	970,854	336,815	1,307,669
2006	513,609	300,938	450,938	150,000	62,671	212,671
2007	1,523,132	916,913	1,312,571	395,658	210,561	606,219
2008	783,888	562,296	660,233	97,937	123,655	221,592
2009	984,054	592,613	798,503	205,889	185,551	391,441
2010	1,148,794	353,987	889,689	535,702	259,105	794,807
2011	2,184,267	752,341	1,691,617	939,276	492,650	1,431,926
2012	626,077	213,486	484,868	271,382	141,208	412,591
2013	1,127,917	340,269	873,521	533,252	254,396	787,648
2014	1,111,142	250,466	837,531	587,065	273,611	860,676
2015	340,521	-	247,003	247,003	93,518	340,521
TOTAL	138,505,728	111,706,239	134,899,517	23,193,279	3,606,211	26,799,490

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Development of Losses to Ultimate

RY	Development Period in Months																			264 - ULT		
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	
1994																						1,000
1995	1,000	1,000	1,000	1,000	1,000	1,000	1,000	3,677	1,000	1,321	1,000	1,000	1,000	1,000	0.939	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1996	0.902	1.033	0.991	1.067	1.057	1.024	1.022	0.986	0.975	1.004	0.996	1.019	1.016	1.030	1.013	1.015	1.034	1.021	1.013	1,000	1,000	1,000
1997	1.419	1.119	1.165	1.129	1.028	1.003	0.954	0.965	1.030	1.099	0.987	1.020	1.012	1.040	1.008	1.002	1.017	1,000	1,000	1,000	1,000	1,000
1998	1.204	1.386	1.084	1.038	1.045	0.968	1.004	1.048	1.012	1.016	1.052	1.024	1.027	1.042	1.012	1.001	1.040	1,000	1,000	1,000	1,000	1,000
1999	1.388	1.027	0.939	1.053	0.966	0.914	0.986	1.021	1.015	1.032	1.011	1.048	1.002	0.997	0.991	1,000	1.025	1,000	1,000	1,000	1,000	1,000
2000	1.144	1.133	1.038	0.934	0.926	1.063	1.054	1.053	1.020	0.993	0.996	1.031	1.010	1.008	1.023	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2001	0.886	1.044	0.843	0.979	0.874	1.083	1.103	1.046	0.957	1.025	1,000	0.983	0.953	1.017	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2002	1.056	0.963	0.912	0.932	1.005	1.041	0.957	1.018	1.185	1.082	0.991	0.983	1.010	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2003	0.768	1.061	0.829	0.946	0.999	1.044	0.979	1.036	1.062	1.015	1.033	0.999	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2004	0.792	0.965	1.015	1.055	0.994	0.990	0.960	1.022	0.990	0.965	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2005	0.933	0.960	1.098	0.982	1.011	0.876	1.016	1.012	1.006	0.990	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2006	0.767	0.851	0.950	1.035	0.886	0.992	1,000	1,000	1,000	1,014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2007	0.911	1.068	1.001	0.914	1.102	1.090	1.075	1.047	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2008	0.755	0.932	0.985	1.262	1.008	1.025	0.999	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2009	1.125	0.974	0.970	0.998	1.031	1.010	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2010	0.696	0.950	0.912	1.001	0.981	1.048	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2011	1.126	1.158	0.990	1.312	1,000	1.048	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2012	1.075	0.851	1.037	1,000	1,000	1.048	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2013	0.916	1.273	1,000	1,000	1,000	1.048	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2014	1.190	1.027	1,000	1,000	1,000	1.048	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000
2015	1.039	1.027	1,000	1,000	1,000	1.048	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1,000	1,000	1,000	1,000	1,000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	91,936	91,936	121,424	121,424	121,424	121,424	121,424	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027
1996	53,531,125	48,276,726	49,847,526	49,418,089	52,753,129	55,738,396	57,091,007	58,374,711	57,572,076	56,151,495	56,390,041	56,178,167	57,273,587	58,214,906	59,977,746	60,770,988	61,688,929	63,792,666	65,150,169	65,977,885	65,977,885	65,977,885	65,977,885
1997	3,488,065	4,948,407	5,536,940	6,451,249	7,281,587	7,485,499	7,508,967	7,162,147	6,910,220	7,116,888	7,823,236	7,718,569	7,871,254	7,964,059	8,283,526	8,349,348	8,364,779	8,504,334	8,506,853	8,506,853	8,506,853	8,506,853	8,506,853
1998	7,409,437	8,921,577	12,369,029	13,404,188	13,919,877	14,550,902	14,092,048	14,149,777	14,829,092	15,013,956	15,259,044	16,052,593	16,444,809	16,896,144	17,597,797	17,814,255	17,835,695	18,556,400	18,561,896	18,561,896	18,561,896	18,561,896	18,561,896
1999	5,779,937	8,024,565	8,241,906	7,737,023	8,143,654	7,865,683	7,192,691	7,094,801	7,246,090	7,355,842	7,589,349	7,674,872	8,045,875	8,059,648	8,032,189	7,960,408	7,958,496	8,160,586	8,163,003	8,163,003	8,163,003	8,163,003	8,163,003
2000	9,556,730	10,928,161	12,377,020	12,846,309	12,002,953	11,119,344	11,814,305	12,457,735	13,114,765	13,373,241	13,233,944	13,644,880	13,775,657	13,890,844	14,208,531	14,222,985	14,584,149	14,588,469	14,588,469	14,588,469	14,588,469	14,588,469	14,588,469
2001	3,317,183	2,939,870	3,070,598	2,589,610	2,534,088	2,214,767	2,397,889	2,643,844	2,764,441	2,644,331	2,710,539	2,709,650	2,663,160	2,536,752	2,580,388	2,611,812	2,614,469	2,680,858	2,681,652	2,681,652	2,681,652	2,681,652	2,681,652
2002	2,797,972	2,955,239	2,845,096	2,594,519	2,418,970	2,430,893	2,530,221	2,421,288	2,465,465	2,921,043	3,160,884	3,133,768	3,081,785	3,114,120	3,198,519	3,237,470	3,240,763	3,323,056	3,324,040	3,324,040	3,324,040	3,324,040	3,324,040
2003	1,489,298	1,143,640	1,213,936	1,006,896	952,160	951,366	993,623	972,568	1,007,453	1,070,316	1,086,373	1,121,830	1,121,173	1,133,995	1,164,728	1,178,912	1,180,111	1,210,078	1,210,436	1,210,436	1,210,436	1,210,436	1,210,436
2004	2,301,363	1,823,714	1,760,489	1,786,562	1,884,942	1,873,519	1,854,993	1,780,592	1,820,296	1,801,843	1,739,254	1,770,349	1,808,449	1,829,130	1,878,703	1,901,582	1,903,516	1,951,852	1,952,430	1,952,430	1,952,430	1,952,430	1,952,430
2005	3,138,114	2,929,139	2,810,581	3,086,814	3,030,308	3,062,220	2,681,318	2,723,317	2,755,742	2,771,583	2,744,820	2,794,245	2,854,381	2,887,023	2,965,267	3,001,378	3,004,431	3,080,723	3,081,635	3,081,635	3,081,635	3,081,635	3,081,635
2006	800,016	613,380	522,073	495,900	513,396	454,749	450,938	450,938	450,938	450,938	457,473	465,710	475,733	481,173	494,214	500,233	500,741	513,457	513,609	513,609	513,609	513,609	513,609
2007	1,090,014	993,082	1,060,685	1,062,066	970,948	1,070,209	1,166,127	1,253,301	1,312,571	1,337,279	1,356,658	1,381,086	1,410,809	1,426,943	1,465,616	1,483,464	1,484,973	1,522,681	1,523,132	1,523,132	1,523,132	1,523,132	1,523,132
2008	731,009	551,962	514,640	506,914	639,744	644,925	660,908	660,233	675,522	688,238	698,211	710,783	726,080	734,384	754,287	763,473	764,249	783,656	783,888	783,888	783,888	783,888	783,888
2009	722,858	813,159	792,223	768,527	767,284	790,727	798,503	828,824	848,016	863,980	876,500	892,282	911,486	921,909	946,895	958,426	959,401	983,763	984,054	984,054	984,054	984,054	984,054
2010	1,501,515	1,045,356	993,470	905,640	906,778	889,689	932,179	967,576	989,982	1,008,618	1,023,234	1,041,658	1,064,076	1,076,245	1,105,414	1,118,875	1,120,013	1,148,454	1,148,794	1,148,794	1,148,794	1,148,794	1,148,794
2011	999,032	1,125,045	1,302,535	1,288,969	1,691,617	1,691,617	1,772,406	1,839,707	1,882,309	1,917,742	1,945,533	1,980,564	2,023,189	2,046,326	2,101,786	2,127,381	2,129,545	2,183,620	2,184,267	2,184,267	2,184,267	2,184,267	2,184,267
2012	510,805	549,280	467,534	484,868	484,868	484,868	508,025	527,316	539,527	549,683	557,488	567,689	579,907	586,539	602,435	609,771	610,392	625,891	626,077	626,077	626,077	626,077	626,077
2013	749,010	686,060	873,521	873,521	873,521	873,521	915,239	949,993	971,991	990,288	1,004,639	1,022,729	1,044,739	1,056,687	1,085,325	1,098,542	1,099,660	1,127,583	1,127,917	1,127,917	1,127,917	1,127,917	1,127,917
2014	704,012	837,531	860,530	860,530	860,530	860,530	901,627	935,864	957,536	975,560	989,697	1,007,518	1,029,201	1,040,971	1,069,184	1,082,204	1,083,305	1,110,813	1,111,142	1,111,142	1,111,142		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994																					
1995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	3.677	1.000	1.321	1.000	1.000	1.000	1.000	0.939	1.000	1.000	1.000	1.000	1.000	
1996	0.902	1.033	0.991	1.067	1.057	1.024	1.022	0.986	0.975	1.004	0.996	1.019	1.016	1.030	1.013	1.015	1.034	1.021	1.013		
1997	1.419	1.119	1.165	1.129	1.028	1.003	0.954	0.965	1.030	1.099	0.987	1.020	1.012	1.040	1.008	1.002	1.017	1.000			
1998	1.204	1.386	1.084	1.038	1.045	0.968	1.004	1.048	1.012	1.016	1.052	1.024	1.027	1.042	1.012	1.001	1.040				
1999	1.388	1.027	0.939	1.053	0.966	0.914	0.986	1.021	1.015	1.032	1.011	1.048	1.002	0.997	0.991	1.000					
2000	1.144	1.133	1.038	0.934	0.926	1.063	1.054	1.053	1.020	0.993	0.996	1.031	1.010	1.008	1.023						
2001	0.886	1.044	0.843	0.979	0.874	1.083	1.103	1.046	0.957	1.025	1.000	0.983	0.953	1.017							
2002	1.056	0.963	0.912	0.932	1.005	1.041	0.957	1.018	1.185	1.082	0.991	0.983	1.010								
2003	0.768	1.061	0.829	0.946	0.999	1.044	0.979	1.036	1.062	1.015	1.033	0.999									
2004	0.792	0.965	1.015	1.055	0.994	0.990	0.960	1.022	0.990	0.965	1.018										
2005	0.933	0.960	1.098	0.982	1.011	0.876	1.016	1.012	1.006	0.990											
2006	0.767	0.851	0.950	1.035	0.886	0.992	1.000	1.000	1.000												
2007	0.911	1.068	1.001	0.914	1.102	1.090	1.075	1.047													
2008	0.755	0.932	0.985	1.262	1.008	1.025	0.999														
2009	1.125	0.974	0.970	0.998	1.031	1.010															
2010	0.696	0.950	0.912	1.001	0.981																
2011	1.126	1.158	0.990	1.312																	
2012	1.075	0.851	1.037																		
2013	0.916	1.273																			
2014	1.190																				
VOL WTD 3	1.056	1.120	0.970	1.136	1.005	1.048	1.038	1.021	0.999	0.987	1.007	0.986	1.002	1.005	1.012	1.001	1.034	1.019	1.013	1.000	NA
VOL WTD 5	0.950	1.050	0.972	1.098	1.014	0.956	1.008	1.023	1.061	1.021	0.999	1.024	1.011	1.023	1.012	1.010	1.034	1.019	1.013	1.000	NA
VOL WTD ALL	0.995	1.074	1.007	1.042	1.022	1.009	1.015	1.007	0.998	1.014	1.005	1.022	1.014	1.027	1.012	1.010	1.034	1.019	1.013	1.000	NA
ARITH 3	1.060	1.094	0.979	1.104	1.007	1.041	1.025	1.020	0.999	0.990	1.014	0.989	0.991	1.007	1.009	1.001	1.030	1.007	1.006	1.000	NA
ARITH 5	1.001	1.041	0.979	1.098	1.002	0.998	1.010	1.023	1.049	1.016	1.008	1.009	1.000	1.021	1.009	1.004	1.023	1.007	1.006	1.000	NA
ARITH ALL	1.003	1.039	0.987	1.038	0.995	1.008	1.008	1.226	1.021	1.049	1.008	1.012	1.004	1.019	0.998	1.004	1.023	1.007	1.006	1.000	NA
5 YR HI LO	1.039	1.027	0.982	1.087	1.007	1.009	1.005	1.023	1.023	1.010	1.005	1.005	1.007	1.022	1.011	1.001	1.025	1.000	NA	NA	NA
SELECTED	1.039	1.027	1.000	1.000	1.000	1.048	1.038	1.023	1.019	1.014	1.018	1.022	1.011	1.027	1.012	1.001	1.025	1.000	1.000	1.000	1.000
																					TAIL 1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Incurred Losses

RY	Development in Months																						
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>	
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1995	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	91,936	121,424	121,424	121,424	121,424	121,424	121,424	114,027	114,027	114,027	114,027	114,027	114,027	114,027	
1996	53,531,125	48,276,726	49,847,526	49,418,089	52,753,129	55,738,396	57,091,007	58,374,711	57,572,076	56,151,495	56,390,041	56,178,167	57,273,587	58,214,906	59,977,746	60,770,988	61,688,929	63,792,666	65,150,169	65,977,885			
1997	3,488,065	4,948,407	5,536,940	6,451,249	7,281,587	7,485,499	7,508,967	7,162,147	6,910,220	7,116,888	7,823,236	7,718,569	7,871,254	7,964,059	8,283,526	8,349,348	8,364,779	8,504,334	8,506,853				
1998	7,409,437	8,921,577	12,369,029	13,404,188	13,919,877	14,550,902	14,092,048	14,149,777	14,829,092	15,013,956	15,259,044	16,052,593	16,444,809	16,896,144	17,597,797	17,814,255	17,835,695	18,556,400					
1999	5,779,937	8,024,565	8,241,906	7,737,023	8,143,654	7,865,683	7,192,691	7,094,801	7,246,090	7,355,842	7,589,349	7,674,872	8,045,875	8,059,648	8,032,189	7,960,408	7,958,496						
2000	9,556,730	10,928,161	12,377,020	12,846,309	12,002,953	11,119,344	11,814,305	12,457,735	13,114,765	13,373,241	13,286,077	13,233,944	13,644,880	13,775,657	13,890,844	14,208,531							
2001	3,317,183	2,939,870	3,070,598	2,589,610	2,534,088	2,214,767	2,397,889	2,643,844	2,764,441	2,644,331	2,710,539	2,709,650	2,663,160	2,536,752	2,580,388								
2002	2,797,972	2,955,239	2,845,096	2,594,519	2,418,970	2,430,893	2,530,221	2,421,288	2,465,465	2,921,043	3,160,884	3,133,768	3,081,785	3,114,120									
2003	1,489,298	1,143,640	1,213,936	1,006,896	952,160	951,366	993,623	972,568	1,007,453	1,070,316	1,086,373	1,121,830	1,121,173										
2004	2,301,363	1,823,714	1,760,489	1,786,562	1,884,942	1,873,519	1,854,993	1,780,592	1,820,296	1,801,843	1,739,254	1,770,349											
2005	3,138,114	2,929,139	2,810,581	3,086,814	3,030,308	3,062,220	2,681,318	2,723,317	2,755,742	2,771,583	2,744,820												
2006	800,016	613,380	522,073	495,900	513,396	454,749	450,938	450,938	450,938														
2007	1,090,014	993,082	1,060,685	1,062,066	970,948	1,070,209	1,166,127	1,253,301	1,312,571														
2008	731,009	551,962	514,640	506,914	639,744	644,925	660,908	660,233															
2009	722,858	813,159	792,223	768,527	767,284	790,727	798,503																
2010	1,501,515	1,045,356	993,470	905,640	906,778	889,689																	
2011	999,032	1,125,045	1,302,535	1,288,969	1,691,617																		
2012	510,805	549,280	467,534	484,868																			
2013	749,010	686,060	873,521																				
2014	704,012	837,531																					
2015	247,003																						

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Losses Reserves

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	25,000	25,000	25,000	25,000	25,000	25,000	25,000	17,219	19,674	10,512	40,000	20,390	20,390	16,228	14,718	0	0	0	0	0	0	0
1996	53,490,810	47,441,227	47,118,808	42,849,185	39,379,375	36,892,778	33,270,170	30,710,564	25,945,728	21,280,491	18,642,593	15,722,268	14,739,029	12,449,125	11,408,809	10,112,803	9,403,589	9,909,939	10,138,843	9,054,360		
1997	3,426,664	3,914,678	3,418,485	3,056,550	2,985,313	2,533,794	2,205,587	1,758,304	1,287,181	1,265,692	1,850,719	1,175,974	1,148,761	970,495	969,308	905,638	822,789		832,451			
1998	7,169,642	5,888,877	6,274,766	5,225,818	4,544,737	4,482,439	3,489,766	3,237,368	3,144,300	2,917,112	2,198,738	2,324,722	1,945,744	1,944,695	2,278,383	2,238,978	1,973,476	2,398,007				
1999	5,343,102	5,918,734	5,600,145	4,366,977	4,145,054	3,337,903	2,554,415	2,251,628	2,213,526	1,989,114	1,671,661	1,425,361	1,595,322	1,485,353	1,326,737	1,150,443	1,065,433					
2000	8,152,109	7,671,223	7,786,567	7,327,061	5,550,958	3,925,597	4,063,520	3,621,444	3,979,671	3,745,599	3,235,809	2,903,453	3,037,482	2,840,761	2,625,098	2,600,326						
2001	3,317,183	2,792,398	2,593,616	1,984,982	1,720,286	1,303,575	1,233,646	1,391,067	1,317,035	1,034,953	1,024,784	936,170	824,078	666,074	675,407							
2002	2,750,593	2,474,879	1,831,012	1,453,779	1,110,391	1,028,285	999,203	829,895	806,341	1,106,376	1,285,883	1,172,843	967,604	910,051								
2003	1,417,876	942,468	896,909	628,168	517,800	460,302	428,221	371,764	377,079	384,062	377,966	359,575	337,018									
2004	2,217,203	1,421,992	1,227,749	1,057,589	997,681	865,222	734,887	594,517	590,902	515,569	412,099	386,207										
2005	3,023,029	2,534,836	2,240,364	2,180,002	1,977,246	1,786,271	1,236,667	1,225,447	1,199,237	1,066,951	970,854											
2006	791,442	576,197	378,352	291,910	238,458	165,873	150,000	150,000	150,000	150,000												
2007	1,087,153	874,006	697,656	619,997	433,871	395,337	422,968	449,818	395,658													
2008	670,395	297,731	248,259	186,155	239,601	142,395	143,157	97,937														
2009	629,496	531,032	349,387	264,178	235,087	250,627	205,889															
2010	1,501,515	920,350	764,047	657,610	568,763	535,702																
2011	878,986	792,969	690,333	604,894	593,276																	
2012	500,806	415,495	279,245	271,382																		
2013	705,623	464,307	533,252																			
2014	685,977	587,065																				
2015	247,003																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Ratio of Paid to Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994																						
1995	0%	0%	0%	0%	0%	0%	0%	31%	79%	89%	67%	83%	83%	87%	88%	100%	100%	100%	100%	100%	100%	100%
1996	0%	2%	5%	13%	25%	34%	42%	47%	55%	62%	67%	72%	74%	79%	81%	83%	85%	84%	84%	86%		
1997	2%	21%	38%	53%	59%	66%	71%	75%	81%	82%	76%	85%	85%	88%	88%	89%	90%	89%	90%			
1998	3%	34%	49%	61%	67%	69%	75%	77%	79%	81%	86%	86%	88%	88%	87%	87%	89%	87%				
1999	8%	26%	32%	44%	49%	58%	64%	68%	69%	73%	78%	81%	80%	82%	83%	86%	87%					
2000	15%	30%	37%	43%	54%	65%	66%	71%	70%	72%	76%	78%	78%	79%	81%	82%						
2001	0%	5%	16%	23%	32%	41%	45%	47%	52%	61%	62%	65%	69%	74%	74%							
2002	2%	16%	36%	44%	54%	58%	61%	66%	67%	62%	59%	63%	69%	71%								
2003	5%	18%	26%	38%	46%	52%	57%	62%	63%	64%	65%	68%	70%									
2004	4%	22%	30%	41%	47%	54%	60%	67%	68%	71%	76%	78%										
2005	4%	13%	20%	29%	35%	42%	54%	55%	56%	62%	65%											
2006	1%	6%	28%	41%	54%	64%	67%	67%	67%													
2007	0%	12%	34%	42%	55%	63%	64%	64%	70%	67%												
2008	8%	46%	52%	63%	63%	78%	78%	85%														
2009	13%	35%	56%	66%	69%	68%	74%															
2010	0%	12%	23%	27%	37%	40%																
2011	12%	30%	47%	53%	44%																	
2012	2%	24%	40%	44%																		
2013	6%	32%	39%																			
2014	3%	30%																				
2015	0%																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial UST
Determination of Pure Premium

(1) <u>RY</u>	(2) PAID LDM <u>ULTIMATE</u>	(3) INC LDM <u>ULTIMATE</u>	(4) SELECTED <u>ULTIMATE</u>	(5) POTENTIAL <u>SITES</u>	(6) PURE <u>PREMIUM</u>
2008	949,030	783,888	866,459	12,021	72
2009	1,055,946	984,054	1,020,000	12,004	85
2010	889,689	1,148,794	1,019,242	11,974	85
2011	1,837,311	2,184,267	2,010,789	11,937	168
2012	704,084	626,077	665,080	11,916	56
2013	1,271,645	1,127,917	1,199,781	11,889	101
2014	1,654,109	1,111,142	1,382,626	11,856	117
2015	247,003	340,521	293,762	11,840	25
TOTAL	8,608,817	8,306,661	8,457,739	95,437	89

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POTENTIAL SITES	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT UNPAID	EXPECTED UNPAID	PAID LOSSES	INDICATED ULTIMATE	INCURRED LOSSES	IBNR RESERVE	CASE RESERVE	ULTIMATE PURE PREM
2008	12,021	72	83	97	1,171,012	40.8%	477,193	562,296	1,039,489	660,233	379,256	97,937	86
2009	12,004	85	96	99	1,192,743	43.9%	523,357	592,613	1,115,971	798,503	317,468	205,889	93
2010	11,974	85	94	101	1,213,558	50.7%	615,603	353,987	969,590	889,689	79,901	535,702	81
2011	11,937	168	182	103	1,234,004	59.1%	728,705	752,341	1,481,046	1,691,617	(210,571)	939,276	124
2012	11,916	56	59	105	1,256,470	69.7%	875,494	213,486	1,088,980	484,868	604,112	271,382	91
2013	11,889	101	105	108	1,278,695	73.2%	936,540	340,269	1,276,809	873,521	403,287	533,252	107
2014	11,856	117	119	110	1,300,649	84.9%	1,103,704	250,466	1,354,170	837,531	516,639	587,065	114
2015	11,840	25	25	112	1,324,872	97.3%	1,288,740	-	1,288,740	247,003	1,041,737	247,003	109
TOTAL	95,437				9,972,003		6,549,335	3,065,459	9,614,794	6,482,965	3,131,829	3,417,506	101
	<u>Pure Premium Selection</u>				Trend =	1.020							
	3-Year Average x Latest			94									
	5-Year Average x Latest			112									
	All Year Average x Latest			105									
	Selected Pure Premium			112									

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POTENTIAL SITES	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT IBNR	EXPECTED IBNR	INCURRED LOSSES	INDICATED ULTIMATE	PAID LOSSES	UNPAID LOSS	CASE RESERVE	ULTIMATE PURE PREM
2008	12,021	72	83	97	1,171,012	15.8%	184,723	660,233	844,955	562,296	282,659	97,937	70
2009	12,004	85	96	99	1,192,743	18.9%	224,902	798,503	1,023,404	592,613	430,791	205,889	85
2010	11,974	85	94	101	1,213,558	22.6%	273,712	889,689	1,163,401	353,987	809,414	535,702	97
2011	11,937	168	182	103	1,234,004	22.6%	278,323	1,691,617	1,969,940	752,341	1,217,599	939,276	165
2012	11,916	56	59	105	1,256,470	22.6%	283,390	484,868	768,259	213,486	554,773	271,382	64
2013	11,889	101	105	108	1,278,695	22.6%	288,403	873,521	1,161,924	340,269	821,655	533,252	98
2014	11,856	117	119	110	1,300,649	24.6%	320,276	837,531	1,157,807	250,466	907,341	587,065	98
2015	11,840	25	25	112	1,324,872	27.5%	363,853	247,003	610,856	-	610,856	247,003	52
TOTAL	95,437				9,972,003		2,217,581	6,482,965	8,700,547	3,065,459	5,635,088	3,417,506	91
	<u>Pure Premium Selection</u>				Trend =	1.020							
	3-Year Average x Latest			94									
	5-Year Average x Latest			112									
	All Year Average x Latest			105									
	Selected Pure Premium			112									

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	497,981	478,042	478,042	478,042	-	-
1999	2,675,071	2,689,230	2,529,597	2,689,230	159,632	-
2000	1,287,125	1,195,793	1,195,793	1,195,793	-	-
2001	5,514,906	6,227,944	5,018,242	6,227,944	1,209,702	-
2002	1,755,260	2,167,740	1,556,347	2,167,740	611,393	-
2003	1,280,507	1,552,847	1,100,227	1,552,847	452,620	-
2004	2,918,873	2,918,873	2,443,349	2,900,827	457,478	18,046
2005	1,914,542	1,914,542	1,407,470	1,672,486	265,016	242,056
2006	1,881,035	1,909,874	1,334,084	1,909,874	575,790	-
2007	1,641,461	1,641,461	1,069,756	1,249,903	180,147	391,558
2008	746,049	746,049	458,918	569,232	110,314	176,817
2009	793,708	849,952	459,776	849,952	390,176	-
2010	523,854	587,710	289,061	587,710	298,649	-
2011	1,437,613	1,437,613	651,347	876,176	224,830	561,437
2012	3,235,531	3,235,531	1,305,178	2,044,128	738,950	1,191,403
2013	1,697,440	1,697,440	541,380	1,077,876	536,496	619,564
2014	14,710	833,119	3,119	833,119	830,000	-
2015	414,352	415,140	35,104	415,140	380,036	-
TOTAL	30,230,018	32,498,899	21,876,791	29,298,019	7,421,228	3,200,880

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Development of Losses to Ultimate

RY	Development Period in Months																					264 - ULT
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	
1994																						1,000
1995																						1,000
1996																				1,009	1,008	1,000
1997																			1,011	1,009	1,008	1,000
1998		1,000	1,000	1,000	1,000	1,000	1,000	1,000	4,669	2,231	2,058	1,148	1,066	1,091	1,000	1,000	1,000	1,013	1,011	1,009	1,008	1,000
1999	15,900	1,244	2,319	1,021	1,004	1,011	1,041	1,014	1,085	1,078	1,058	1,037	1,005	1,016	1,000	1,124	1,015	1,013	1,011	1,009	1,008	1,000
2000	1,761	1,262	1,034	1,014	1,018	1,108	1,028	1,038	1,083	1,014	1,013	1,025	1,001	1,010	1,000	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2001	1,541	1,087	1,075	1,093	1,050	1,021	1,028	1,099	1,106	1,029	1,266	1,019	1,043	1,029	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2002	10,706	2,111	1,228	1,161	1,078	1,049	1,133	1,134	1,168	1,037	1,019	1,010	1,052	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2003	3,306	1,453	1,561	1,192	1,187	1,137	1,043	1,129	1,051	1,067	1,192	1,050	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2004	3,116	1,474	1,254	1,298	1,343	1,122	1,032	1,102	1,122	1,044	1,055	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2005	11,692	1,138	1,099	1,080	1,052	1,048	1,018	1,026	1,008	1,008	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2006	4,502	1,556	1,611	1,283	1,183	1,035	1,111	1,026	1,092	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2007	3,306	1,594	1,127	1,341	1,099	1,033	1,053	1,050	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2008	2,474	1,276	1,351	1,168	1,027	1,067	1,100	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2009	10,467	1,861	1,934	1,065	1,456	1,254	1,062	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2010	4,034	1,182	1,691	1,078	1,324	1,050	1,062	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2011	3,325	1,526	1,081	1,124	1,218	1,050	1,062	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2012	1,608	1,402	1,175	1,123	1,218	1,050	1,062	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2013	3,828	1,585	1,265	1,123	1,218	1,050	1,062	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2014	1,000	1,504	1,265	1,123	1,218	1,050	1,062	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000
2015	2,503	1,504	1,265	1,123	1,218	1,050	1,062	1,059	1,088	1,037	1,139	1,026	1,032	1,026	1,021	1,018	1,015	1,013	1,011	1,009	1,008	1,000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	16,713	16,713	16,713	16,713	16,713	16,713	16,713	16,713	78,028	174,102	358,349	411,237	438,258	478,042	478,042	478,042	478,042	484,204	489,510	494,069	497,981	497,981
1999	34,176	543,408	676,196	1,567,972	1,601,529	1,608,182	1,625,584	1,692,876	1,717,189	1,863,780	2,008,295	2,125,717	2,204,155	2,214,424	2,250,269	2,250,269	2,529,597	2,567,962	2,601,066	2,629,567	2,654,059	2,675,071	2,675,071
2000	370,129	651,957	822,756	850,390	862,198	877,375	971,906	999,462	1,037,135	1,123,070	1,139,298	1,154,165	1,182,661	1,184,428	1,195,793	1,195,793	1,217,129	1,235,589	1,251,517	1,265,231	1,277,015	1,287,125	1,287,125
2001	1,334,769	2,056,418	2,236,336	2,404,395	2,628,060	2,759,085	2,817,023	2,896,871	3,183,541	3,519,996	3,623,500	4,589,112	4,674,733	4,876,595	5,018,242	5,123,581	5,214,999	5,294,091	5,362,338	5,421,097	5,471,588	5,514,906	5,514,906
2002	25,391	271,845	573,933	704,799	818,350	881,841	924,693	1,047,264	1,187,136	1,386,044	1,436,815	1,464,223	1,479,159	1,556,347	1,597,184	1,630,711	1,659,807	1,684,980	1,706,702	1,725,403	1,741,473	1,755,260	1,755,260
2003	55,198	182,491	265,162	413,872	493,384	585,783	665,773	694,461	783,706	823,855	878,721	1,047,401	1,100,227	1,135,395	1,165,187	1,189,646	1,210,872	1,229,236	1,245,083	1,258,726	1,270,449	1,280,507	1,280,507
2004	154,438	481,188	709,451	889,323	1,154,237	1,550,136	1,738,876	1,795,147	1,978,584	2,219,493	2,316,258	2,443,349	2,507,930	2,588,094	2,656,003	2,711,756	2,760,141	2,802,002	2,838,123	2,869,222	2,895,946	2,918,873	2,918,873
2005	76,161	890,444	1,013,676	1,114,425	1,203,629	1,266,271	1,326,703	1,350,155	1,385,185	1,396,276	1,407,470	1,602,637	1,644,997	1,697,578	1,742,121	1,778,690	1,810,427	1,837,884	1,861,577	1,881,975	1,899,504	1,914,542	1,914,542
2006	60,491	272,313	423,641	682,375	875,535	1,035,779	1,072,081	1,190,682	1,221,925	1,334,084	1,382,837	1,574,589	1,616,207	1,667,868	1,711,631	1,747,561	1,778,742	1,805,718	1,828,996	1,849,038	1,866,260	1,881,035	1,881,035
2007	107,082	353,965	564,316	635,862	852,470	936,817	967,505	1,018,844	1,069,756	1,164,172	1,206,716	1,374,045	1,410,363	1,455,444	1,493,634	1,524,987	1,552,197	1,575,738	1,596,051	1,613,540	1,628,568	1,641,461	1,641,461
2008	76,453	189,175	241,331	325,929	380,673	391,046	417,098	458,918	486,208	529,120	548,456	624,508	641,014	661,504	678,861	693,111	705,478	716,178	725,410	733,359	740,189	746,049	746,049
2009	6,274	65,671	122,193	236,292	251,768	366,562	459,776	488,234	517,267	562,921	583,492	664,402	681,963	703,762	722,228	737,388	750,545	761,928	771,751	780,207	787,474	793,708	793,708
2010	25,118	101,329	119,772	202,531	218,274	289,061	303,456	322,239	341,401	371,532	385,110	438,511	450,102	464,489	476,676	486,683	495,366	502,879	509,362	514,943	519,739	523,854	523,854
2011	105,665	351,316	535,992	579,582	651,347	793,271	832,775	884,320	936,906	1,019,597	1,056,857	1,203,406	1,235,214	1,274,697	1,308,144	1,335,603	1,359,434	1,380,051	1,397,842	1,413,159	1,426,321	1,437,613	1,437,613
2012	492,662	792,235	1,110,684	1,305,178	1,465,938	1,785,358	1,874,265	1,990,275	2,108,627	2,294,732	2,378,591	2,708,420	2,780,006	2,868,867	2,944,144	3,005,945	3,059,579	3,105,981	3,146,021	3,180,494	3,210,117	3,235,531	3,235,531
2013	89,198	341,477	541,380	684,729	769,068	936,643	983,286	1,044,148	1,106,238	1,203,874	1,247,868	1,420,904	1,458,460	1,505,079	1,544,571	1,576,993	1,605,131	1,629,475	1,650,481	1,668,566	1,684,107	1,697,440	1,697,440
2014	3,119	3,119	4,692	5,934	6,665	8,117	8,521	9,048	9,586	10,433	10,814	12,313	12,639	13,043	13,385	13,666	13,910	14,121	14,303	14,459	14,594	14,710	14,710
2015	35,104	87,848	132,153	167,145	187,733	228,639	240,024	254,881	270,037	293,871	304,610	346,849	356,016	367,396	377,036	384,951	391,819	397,762	402,889	407,304	411,098	414,352	414,352

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994																					
1995																					
1996																					
1997																					
1998		1.000	1.000	1.000	1.000	1.000	1.000	1.000	4.669	2.231	2.058	1.148	1.066	1.091	1.000	1.000	1.000				
1999	15.900	1.244	2.319	1.021	1.004	1.011	1.041	1.014	1.085	1.078	1.058	1.037	1.005	1.016	1.000	1.124					
2000	1.761	1.262	1.034	1.014	1.018	1.108	1.028	1.038	1.083	1.014	1.013	1.025	1.001	1.010	1.000						
2001	1.541	1.087	1.075	1.093	1.050	1.021	1.028	1.099	1.106	1.029	1.266	1.019	1.043	1.029							
2002	10.706	2.111	1.228	1.161	1.078	1.049	1.133	1.134	1.168	1.037	1.019	1.010	1.052								
2003	3.306	1.453	1.561	1.192	1.187	1.137	1.043	1.129	1.051	1.067	1.192	1.050									
2004	3.116	1.474	1.254	1.298	1.343	1.122	1.032	1.102	1.122	1.044	1.055										
2005	11.692	1.138	1.099	1.080	1.052	1.048	1.018	1.026	1.008	1.008											
2006	4.502	1.556	1.611	1.283	1.183	1.035	1.111	1.026	1.092												
2007	3.306	1.594	1.127	1.341	1.099	1.033	1.053	1.050													
2008	2.474	1.276	1.351	1.168	1.027	1.067	1.100														
2009	10.467	1.861	1.934	1.065	1.456	1.254															
2010	4.034	1.182	1.691	1.078	1.324																
2011	3.325	1.526	1.081	1.124																	
2012	1.608	1.402	1.175																		
2013	3.828	1.585																			
2014	1.000																				
VOL WTD 3	1.943	1.473	1.182	1.101	1.230	1.088	1.086	1.033	1.079	1.037	1.070	1.022	1.038	1.023	1.000	1.102	1.000	NA	NA	NA	NA
VOL WTD 5	2.221	1.471	1.244	1.189	1.171	1.062	1.053	1.064	1.092	1.034	1.139	1.025	1.032	1.026	1.000	1.102	1.000	NA	NA	NA	NA
VOL WTD ALL	2.503	1.319	1.265	1.130	1.106	1.059	1.049	1.069	1.099	1.046	1.139	1.029	1.032	1.026	1.000	1.102	1.000	NA	NA	NA	NA
ARITH 3	2.145	1.504	1.316	1.089	1.269	1.118	1.088	1.034	1.074	1.039	1.089	1.026	1.032	1.018	1.000	1.062	1.000	NA	NA	NA	NA
ARITH 5	2.759	1.511	1.446	1.155	1.218	1.087	1.063	1.067	1.088	1.037	1.109	1.028	1.033	1.036	1.000	1.062	1.000	NA	NA	NA	NA
ARITH ALL	5.160	1.422	1.369	1.137	1.140	1.074	1.053	1.062	1.487	1.188	1.237	1.048	1.033	1.036	1.000	1.062	1.000	NA	NA	NA	NA
5 YR HI LO	2.920	1.504	1.406	1.123	1.202	1.050	1.062	1.059	1.088	1.037	1.089	1.027	1.033	1.023	1.000	NA	NA	NA	NA	NA	NA
SELECTED	2.503	1.504	1.265	1.123	1.218	1.050	1.062	1.059	1.088	1.037	1.139	1.026	1.032	1.026	1.021	1.018	1.015	1.013	1.011	1.009	1.008
																					<u>TAIL</u> 1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Paid Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	16,713	16,713	16,713	16,713	16,713	16,713	16,713	16,713	78,028	174,102	358,349	411,237	438,258	478,042	478,042	478,042	478,042	-	-	-	-
1999	34,176	543,408	676,196	1,567,972	1,601,529	1,608,182	1,625,584	1,692,876	1,717,189	1,863,780	2,008,295	2,125,717	2,204,155	2,214,424	2,250,269	2,250,269	2,529,597	-	-	-	-	
2000	370,129	651,957	822,756	850,390	862,198	877,375	971,906	999,462	1,037,135	1,123,070	1,139,298	1,154,165	1,182,661	1,184,428	1,195,793	1,195,793	-	-	-	-	-	
2001	1,334,769	2,056,418	2,236,336	2,404,395	2,628,060	2,759,085	2,817,023	2,896,871	3,183,541	3,519,996	3,623,500	4,589,112	4,674,733	4,876,595	5,018,242	-	-	-	-	-	-	
2002	25,391	271,845	573,933	704,799	818,350	881,841	924,693	1,047,264	1,187,136	1,386,044	1,436,815	1,464,223	1,479,159	1,556,347	-	-	-	-	-	-	-	
2003	55,198	182,491	265,162	413,872	493,384	585,783	665,773	694,461	783,706	823,855	878,721	1,047,401	1,100,227	-	-	-	-	-	-	-	-	
2004	154,438	481,188	709,451	889,323	1,154,237	1,550,136	1,738,876	1,795,147	1,978,584	2,219,493	2,316,258	2,443,349	-	-	-	-	-	-	-	-	-	
2005	76,161	890,444	1,013,676	1,114,425	1,203,629	1,266,271	1,326,703	1,350,155	1,385,185	1,396,276	1,407,470	-	-	-	-	-	-	-	-	-	-	
2006	60,491	272,313	423,641	682,375	875,535	1,035,779	1,072,081	1,190,682	1,221,925	1,334,084	-	-	-	-	-	-	-	-	-	-	-	
2007	107,082	353,965	564,316	635,862	852,470	936,817	967,505	1,018,844	1,069,756	-	-	-	-	-	-	-	-	-	-	-	-	
2008	76,453	189,175	241,331	325,929	380,673	391,046	417,098	458,918	-	-	-	-	-	-	-	-	-	-	-	-	-	
2009	6,274	65,671	122,193	236,292	251,768	366,562	459,776	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2010	25,118	101,329	119,772	202,531	218,274	289,061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2011	105,665	351,316	535,992	579,582	651,347	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2012	492,662	792,235	1,110,684	1,305,178	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2013	89,198	341,477	541,380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2014	3,119	3,119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2015	35,104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,529,597	2,689,230	159,632	-	159,632
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,227,944	5,018,242	6,227,944	1,209,702	-	1,209,702
2002	2,160,416	1,556,347	2,167,740	611,393	(7,324)	604,069
2003	1,509,766	1,100,227	1,552,847	452,620	(43,081)	409,539
2004	2,844,310	2,443,349	2,900,827	457,478	(56,517)	400,961
2005	1,636,421	1,407,470	1,672,486	265,016	(36,066)	228,951
2006	1,879,770	1,334,084	1,909,874	575,790	(30,104)	545,686
2007	1,232,589	1,069,756	1,249,903	180,147	(17,315)	162,832
2008	615,611	458,918	569,232	110,314	46,379	156,693
2009	927,457	459,776	849,952	390,176	77,505	467,681
2010	660,127	289,061	587,710	298,649	72,417	371,066
2011	1,082,571	651,347	876,176	224,830	206,395	431,225
2012	2,587,218	1,305,178	2,044,128	738,950	543,090	1,282,040
2013	1,439,498	541,380	1,077,876	536,496	361,621	898,118
2014	1,301,326	3,119	833,119	830,000	468,207	1,298,207
2015	738,095	35,104	415,140	380,036	322,954	702,991
TOTAL	31,206,183	21,876,791	29,298,019	7,421,228	1,908,164	9,329,392

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Development of Losses to Ultimate

RY	Development Period in Months																						
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT	
1994																						1,000	
1995																						1,000	
1996																				1,000		1,000	
1997																			1,000			1,000	
1998	0.919	1.000	1.000	1.000	1.000	1.000	1.000	1.000	5.060	1.000	1.000	1.000	0.941	0.860	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1999	2.823	1.728	1.311	1.028	1.000	1.002	1.000	1.223	1.011	1.020	1.017	0.999	0.985	1.000	1.000	1.050	1.000	1.000	1.000	1.000	1.000	1.000	
2000	0.962	1.129	1.031	0.939	0.956	1.047	1.016	1.044	1.052	1.000	1.000	0.998	1.001	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2001	1.249	1.030	0.860	0.957	1.024	1.053	1.037	1.158	1.088	1.010	1.145	1.020	1.010	1.065	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2002	1.400	0.975	0.747	0.999	1.094	1.051	0.969	1.000	0.961	1.006	1.000	1.208	0.910	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2003	1.007	0.827	1.143	1.042	1.096	1.030	1.030	1.011	1.061	1.240	0.987	1.006	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2004	1.017	1.163	1.104	1.448	1.013	1.039	1.007	1.279	1.013	0.998	0.994	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2005	0.924	1.035	1.032	0.955	1.137	1.010	1.011	0.988	1.000	1.002	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2006	1.741	1.117	1.068	1.045	1.040	1.074	1.037	1.282	0.879	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2007	0.990	0.996	0.948	0.974	1.000	1.099	1.009	0.999	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2008	1.200	1.023	0.966	1.026	1.127	1.000	1.000	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2009	1.279	1.001	1.295	1.058	1.133	1.003	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2010	0.567	1.112	1.246	1.147	1.203	1.029	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2011	1.092	1.390	0.942	0.989	1.100	1.029	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2012	1.147	1.410	0.953	1.024	1.100	1.029	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2013	1.176	1.007	1.055	1.024	1.100	1.029	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2014	6.773	1.170	1.055	1.024	1.100	1.029	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2015	1.138	1.170	1.055	1.024	1.100	1.029	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	127,001	116,714	116,714	116,714	116,714	116,714	116,714	116,714	116,714	590,611	590,611	590,611	590,611	555,611	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042
1999	308,314	870,343	1,504,209	1,971,983	2,027,001	2,026,436	2,030,044	2,030,044	2,482,580	2,510,580	2,561,027	2,603,820	2,601,196	2,561,795	2,561,795	2,561,795	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230
2000	1,026,004	986,880	1,114,568	1,148,569	1,078,568	1,030,942	1,079,607	1,097,363	1,145,515	1,205,440	1,205,440	1,205,440	1,202,646	1,203,928	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793
2001	3,289,000	4,108,645	4,233,509	3,642,391	3,484,058	3,566,802	3,756,792	3,895,867	4,511,171	4,910,015	4,958,003	5,677,351	5,790,979	5,849,503	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944
2002	1,797,008	2,516,405	2,453,720	1,833,500	1,832,500	2,004,966	2,106,298	2,041,647	2,041,647	1,961,513	1,972,533	1,972,533	2,381,937	2,167,740	2,160,416	2,160,416	2,160,416	2,160,416	2,160,416	2,160,416	2,160,416	2,160,416	2,160,416
2003	1,020,098	1,027,589	849,418	970,556	1,011,191	1,108,245	1,141,783	1,175,610	1,188,633	1,261,406	1,563,735	1,542,848	1,552,847	1,514,884	1,509,766	1,509,766	1,509,766	1,509,766	1,509,766	1,509,766	1,509,766	1,509,766	1,509,766
2004	1,125,017	1,144,322	1,331,067	1,470,142	2,128,424	2,155,771	2,240,562	2,256,189	2,886,714	2,924,415	2,919,415	2,900,827	2,925,472	2,853,952	2,844,310	2,844,310	2,844,310	2,844,310	2,844,310	2,844,310	2,844,310	2,844,310	2,844,310
2005	1,543,485	1,425,516	1,475,649	1,522,726	1,454,148	1,653,994	1,671,234	1,688,897	1,668,486	1,668,486	1,672,486	1,668,937	1,683,116	1,641,968	1,636,421	1,636,421	1,636,421	1,636,421	1,636,421	1,636,421	1,636,421	1,636,421	1,636,421
2006	674,273	1,174,072	1,310,933	1,399,553	1,462,786	1,521,109	1,634,236	1,694,721	2,173,374	1,909,874	1,921,199	1,917,121	1,933,409	1,886,142	1,879,770	1,879,770	1,879,770	1,879,770	1,879,770	1,879,770	1,879,770	1,879,770	1,879,770
2007	1,238,240	1,225,463	1,220,733	1,156,901	1,127,089	1,127,090	1,238,935	1,250,577	1,249,903	1,252,328	1,259,754	1,257,080	1,267,760	1,236,767	1,232,589	1,232,589	1,232,589	1,232,589	1,232,589	1,232,589	1,232,589	1,232,589	1,232,589
2008	415,004	497,948	509,298	492,059	504,948	569,232	569,232	569,232	624,259	625,470	629,179	627,844	633,178	617,698	615,611	615,611	615,611	615,611	615,611	615,611	615,611	615,611	615,611
2009	426,280	545,273	545,773	706,544	747,814	847,182	849,952	857,584	940,485	942,310	947,897	945,885	953,922	930,601	927,457	927,457	927,457	927,457	927,457	927,457	927,457	927,457	927,457
2010	542,005	307,495	341,816	426,049	488,528	587,710	604,962	610,395	669,400	670,699	674,676	673,244	678,964	662,365	660,127	660,127	660,127	660,127	660,127	660,127	660,127	660,127	660,127
2011	620,289	677,051	941,165	886,346	876,176	963,811	992,104	1,001,013	1,097,779	1,099,908	1,106,430	1,104,082	1,113,462	1,086,241	1,082,571	1,082,571	1,082,571	1,082,571	1,082,571	1,082,571	1,082,571	1,082,571	1,082,571
2012	1,325,875	1,520,925	2,145,183	2,044,128	2,093,958	2,303,395	2,371,011	2,392,303	2,623,562	2,628,652	2,644,239	2,638,627	2,661,044	2,595,989	2,587,218	2,587,218	2,587,218	2,587,218	2,587,218	2,587,218	2,587,218	2,587,218	2,587,218
2013	910,009	1,070,292	1,077,876	1,137,329	1,165,054	1,281,582	1,319,203	1,331,049	1,459,719	1,462,551	1,471,223	1,468,101	1,480,573	1,444,378	1,439,498	1,439,498	1,439,498	1,439,498	1,439,498	1,439,498	1,439,498	1,439,498	1,439,498
2014	123,002	833,119	974,415	1,028,161	1,053,225	1,158,568	1,192,577	1,203,287	1,319,606	1,322,166	1,330,006	1,327,183	1,338,459	1,305,737	1,301,326	1,301,326	1,301,326	1,301,326	1,301,326	1,301,326	1,301,326	1,301,326	1,301,326
2015	415,140	472,534	552,675	583,159	597,375	657,124	676,414	682,488	748,463	749,915	754,362	752,761	759,156	740,597	738,095	738,095	738,095	738,095	738,095	738,095	738,095	738,095	738,095

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994																					
1995																					
1996																					
1997																					
1998	0.919	1.000	1.000	1.000	1.000	1.000	1.000	1.000	5.060	1.000	1.000	1.000	0.941	0.860	1.000	1.000	1.000				
1999	2.823	1.728	1.311	1.028	1.000	1.002	1.000	1.223	1.011	1.020	1.017	0.999	0.985	1.000	1.000	1.050					
2000	0.962	1.129	1.031	0.939	0.956	1.047	1.016	1.044	1.052	1.000	1.000	0.998	1.001	0.993	1.000						
2001	1.249	1.030	0.860	0.957	1.024	1.053	1.037	1.158	1.088	1.010	1.145	1.020	1.010	1.065							
2002	1.400	0.975	0.747	0.999	1.094	1.051	0.969	1.000	0.961	1.006	1.000	1.208	0.910								
2003	1.007	0.827	1.143	1.042	1.096	1.030	1.030	1.011	1.061	1.240	0.987	1.006									
2004	1.017	1.163	1.104	1.448	1.013	1.039	1.007	1.279	1.013	0.998	0.994										
2005	0.924	1.035	1.032	0.955	1.137	1.010	1.011	0.988	1.000	1.002											
2006	1.741	1.117	1.068	1.045	1.040	1.074	1.037	1.282	0.879												
2007	0.990	0.996	0.948	0.974	1.000	1.099	1.009	0.999													
2008	1.200	1.023	0.966	1.026	1.127	1.000	1.000														
2009	1.279	1.001	1.295	1.058	1.133	1.003															
2010	0.567	1.112	1.246	1.147	1.203																
2011	1.092	1.390	0.942	0.989																	
2012	1.147	1.410	0.953																		
2013	1.176	1.007																			
2014	6.773																				
VOL WTD 3	1.452	1.274	0.979	1.046	1.151	1.045	1.021	1.099	0.966	1.051	0.994	1.058	0.984	1.039	1.000	1.042	1.000	NA	NA	NA	NA
VOL WTD 5	1.252	1.226	1.016	1.021	1.074	1.043	1.014	1.137	0.977	1.028	1.054	1.041	0.982	1.029	1.000	1.042	1.000	NA	NA	NA	NA
VOL WTD ALL	1.214	1.102	0.985	1.034	1.049	1.040	1.013	1.129	1.040	1.024	1.046	1.039	0.982	1.029	1.000	1.042	1.000	NA	NA	NA	NA
ARITH 3	3.032	1.269	1.047	1.065	1.154	1.034	1.015	1.090	0.964	1.080	0.993	1.078	0.974	1.019	1.000	1.025	1.000	NA	NA	NA	NA
ARITH 5	2.151	1.184	1.080	1.039	1.101	1.037	1.013	1.112	0.983	1.051	1.025	1.046	0.969	0.980	1.000	1.025	1.000	NA	NA	NA	NA
ARITH ALL	1.545	1.121	1.043	1.043	1.063	1.034	1.011	1.099	1.458	1.034	1.020	1.038	0.969	0.980	1.000	1.025	1.000	NA	NA	NA	NA
5 YR HI LO	1.138	1.170	1.055	1.024	1.100	1.029	1.009	1.097	0.991	1.006	0.998	1.008	0.976	0.997	1.000	NA	NA	NA	NA	NA	NA
SELECTED	1.138	1.170	1.055	1.024	1.100	1.029	1.009	1.097	1.002	1.006	0.998	1.008	0.976	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000

TAIL
1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Incurred Losses

RY	Development in Months																<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>						
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	127,001	116,714	116,714	116,714	116,714	116,714	116,714	116,714	116,714	590,611	590,611	590,611	590,611	555,611	478,042	478,042	478,042	478,042	478,042	-	-	-
1999	308,314	870,343	1,504,209	1,971,983	2,027,001	2,026,436	2,030,044	2,030,044	2,482,580	2,510,580	2,561,027	2,603,820	2,601,196	2,561,795	2,561,795	2,561,795	2,561,795	2,561,795	2,561,795	2,561,795	2,561,795	2,561,795
2000	1,026,004	986,880	1,114,568	1,148,569	1,078,568	1,030,942	1,079,607	1,097,363	1,145,515	1,205,440	1,205,440	1,205,440	1,202,646	1,203,928	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793
2001	3,289,000	4,108,645	4,233,509	3,642,391	3,484,058	3,566,802	3,756,792	3,895,867	4,511,171	4,910,015	4,958,003	5,677,351	5,790,979	5,849,503	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944	6,227,944
2002	1,797,008	2,516,405	2,453,720	1,833,500	1,832,500	2,004,966	2,106,298	2,041,647	2,041,647	1,961,513	1,972,533	1,972,533	1,972,533	2,381,937	2,167,740	2,167,740	2,167,740	2,167,740	2,167,740	2,167,740	2,167,740	2,167,740
2003	1,020,098	1,027,589	849,418	970,556	1,011,191	1,108,245	1,141,783	1,175,610	1,188,633	1,261,406	1,563,735	1,542,848	1,552,847	1,552,847	1,552,847	1,552,847	1,552,847	1,552,847	1,552,847	1,552,847	1,552,847	1,552,847
2004	1,125,017	1,144,322	1,331,067	1,470,142	2,128,424	2,155,771	2,240,562	2,256,189	2,886,714	2,924,415	2,919,415	2,900,827	2,900,827	2,900,827	2,900,827	2,900,827	2,900,827	2,900,827	2,900,827	2,900,827	2,900,827	2,900,827
2005	1,543,485	1,425,516	1,475,649	1,522,726	1,454,148	1,653,994	1,671,234	1,688,897	1,668,486	1,668,486	1,668,486	1,672,486	1,672,486	1,672,486	1,672,486	1,672,486	1,672,486	1,672,486	1,672,486	1,672,486	1,672,486	1,672,486
2006	674,273	1,174,072	1,310,933	1,399,553	1,462,786	1,521,109	1,634,236	1,694,721	2,173,374	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874	1,909,874
2007	1,238,240	1,225,463	1,220,733	1,156,901	1,127,089	1,127,090	1,238,935	1,250,577	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903	1,249,903
2008	415,004	497,948	509,298	492,059	504,948	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232	569,232
2009	426,280	545,273	545,773	706,544	747,814	847,182	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952	849,952
2010	542,005	307,495	341,816	426,049	488,528	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710	587,710
2011	620,289	677,051	941,165	886,346	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176	876,176
2012	1,325,875	1,520,925	2,145,183	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128	2,044,128
2013	910,009	1,070,292	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876	1,077,876
2014	123,002	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119	833,119
2015	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140	415,140

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Losses Reserves

RY	Development in Months																						
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>	
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1998	127,001	100,001	100,001	100,001	100,001	100,001	100,001	100,001	100,001	512,583	416,509	232,262	179,374	117,353	-	-	-	-	-	-	-	-	
1999	274,138	326,935	828,013	404,012	425,472	418,255	404,461	337,168	765,391	646,801	552,732	478,103	397,041	347,371	311,527	311,527	159,632	-	-	-	-	-	
2000	655,875	334,923	291,812	298,179	216,370	153,567	107,702	97,901	108,381	82,370	66,142	51,275	19,985	19,500	0	0	-	-	-	-	-	-	
2001	1,954,231	2,052,227	1,997,173	1,237,996	855,999	807,717	939,769	998,995	1,327,630	1,390,019	1,334,503	1,088,239	1,116,246	972,908	1,209,702	-	-	-	-	-	-	-	
2002	1,771,617	2,244,560	1,879,787	1,128,701	1,014,150	1,123,125	1,181,605	994,382	854,511	575,469	535,717	508,310	902,778	611,393	-	-	-	-	-	-	-	-	
2003	964,900	845,098	584,256	556,684	517,807	522,462	476,010	481,148	404,928	437,551	685,014	495,446	452,620	-	-	-	-	-	-	-	-	-	
2004	970,579	663,134	621,616	580,819	974,187	605,635	501,686	461,042	908,130	704,923	603,158	457,478	-	-	-	-	-	-	-	-	-	-	
2005	1,467,324	535,072	461,973	408,301	250,519	387,723	344,531	338,742	283,301	272,210	265,016	-	-	-	-	-	-	-	-	-	-	-	
2006	613,783	901,759	887,292	717,178	587,251	485,330	562,155	504,039	951,449	575,790	-	-	-	-	-	-	-	-	-	-	-	-	
2007	1,131,158	871,498	656,417	521,040	274,619	190,273	271,430	231,733	180,147	-	-	-	-	-	-	-	-	-	-	-	-	-	
2008	338,551	308,772	267,967	166,129	124,275	178,187	152,135	110,314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2009	420,006	479,601	423,580	470,251	496,045	480,620	390,176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2010	516,887	206,165	222,044	223,518	270,254	298,649	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2011	514,624	325,735	405,173	306,764	224,830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2012	833,213	728,690	1,034,499	738,950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2013	820,811	728,815	536,496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2014	119,883	830,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2015	380,036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Ratio of Paid to Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994																						
1995																						
1996																						
1997																						
1998	0%	14%	14%	14%	14%	14%	14%	14%	14%	13%	29%	61%	70%	79%	100%	100%	100%	100%				
1999	11%	62%	45%	80%	79%	79%	80%	83%	69%	74%	78%	82%	85%	86%	88%	88%	94%					
2000	36%	66%	74%	74%	80%	85%	90%	91%	91%	93%	95%	96%	98%	98%	100%	100%						
2001	41%	50%	53%	66%	75%	77%	75%	74%	71%	72%	73%	81%	81%	83%	81%							
2002	1%	11%	23%	38%	45%	44%	44%	51%	58%	71%	73%	74%	62%	72%								
2003	5%	18%	31%	43%	49%	53%	58%	59%	66%	65%	56%	68%	71%									
2004	14%	42%	53%	60%	54%	72%	78%	80%	69%	76%	79%	84%										
2005	5%	62%	69%	73%	83%	77%	79%	80%	83%	84%	84%											
2006	9%	23%	32%	49%	60%	68%	66%	70%	56%	70%												
2007	9%	29%	46%	55%	76%	83%	78%	81%	86%													
2008	18%	38%	47%	66%	75%	69%	73%	81%														
2009	1%	12%	22%	33%	34%	43%	54%															
2010	5%	33%	35%	48%	45%	49%																
2011	17%	52%	57%	65%	74%																	
2012	37%	52%	52%	64%																		
2013	10%	32%	50%																			
2014	3%	0%																				
2015	8%																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Insurance AST
Determination of Pure Premium

(1)	(2)	(3)	(4)	(5)	(6)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>POLICIES</u> <u>IN FORCE</u>	<u>PURE</u> <u>PREMIUM</u>
2008	746,049	615,611	680,830	517	1,317
2009	849,952	927,457	888,704	563	1,579
2010	587,710	660,127	623,919	578	1,079
2011	1,437,613	1,082,571	1,260,092	810	1,556
2012	3,235,531	2,587,218	2,911,375	975	2,986
2013	1,697,440	1,439,498	1,568,469	1,003	1,564
2014	833,119	1,301,326	1,067,222	1,030	1,036
2015	415,140	738,095	576,617	1,021	565
TOTAL	9,802,553	9,351,903	9,577,228	6,497	1,474

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT UNPAID	(8) EXPECTED UNPAID	(9) PAID LOSSES	(10) INDICATED ULTIMATE	(11) INCURRED LOSSES	(12) IBNR RESERVE	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
2008	517	1,317	792	2,205	1,139,792	38.5%	438,671	458,918	897,589	569,232	328,356	110,314	1,736
2009	563	1,579	1,021	2,050	1,154,320	42.1%	485,650	459,776	945,426	849,952	95,475	390,176	1,679
2010	578	1,079	751	1,907	1,102,120	44.8%	493,973	289,061	783,034	587,710	195,324	298,649	1,355
2011	810	1,556	1,164	1,773	1,436,378	54.7%	785,591	651,347	1,436,938	876,176	560,761	224,830	1,774
2012	975	2,986	2,402	1,649	1,607,946	59.7%	959,318	1,305,178	2,264,496	2,044,128	220,368	738,950	2,323
2013	1,003	1,564	1,353	1,534	1,538,334	68.1%	1,047,699	541,380	1,589,079	1,077,876	511,203	536,496	1,584
2014	1,030	1,036	964	1,426	1,469,163	78.8%	1,157,683	3,119	1,160,802	833,119	327,683	830,000	1,127
2015	1,021	565	565	1,327	1,354,383	91.5%	1,239,639	35,104	1,274,743	415,140	859,603	380,036	1,249
TOTAL	6,497				10,802,436		6,608,224	3,743,883	10,352,107	7,253,334	3,098,774	3,509,451	1,593

<u>Pure Premium Selection</u>		Trend =	0.930
3-Year Average x Latest	1,573		
5-Year Average x Latest	1,327		
All Year Average x Latest	1,207		
Selected Pure Premium	1,327		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POLICIES IN FORCE	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT IBNR	EXPECTED IBNR	INCURRED LOSSES	INDICATED ULTIMATE	PAID LOSSES	UNPAID LOSS	CASE RESERVE	ULTIMATE PURE PREM
2008	517	1,317	792	2,205	1,139,792	7.5%	85,870	569,232	655,102	458,918	196,184	110,314	1,267
2009	563	1,579	1,021	2,050	1,154,320	8.4%	96,464	849,952	946,415	459,776	486,639	390,176	1,681
2010	578	1,079	751	1,907	1,102,120	11.0%	120,905	587,710	708,615	289,061	419,554	298,649	1,226
2011	810	1,556	1,164	1,773	1,436,378	19.1%	273,849	876,176	1,150,026	651,347	498,679	224,830	1,420
2012	975	2,986	2,402	1,649	1,607,946	21.0%	337,529	2,044,128	2,381,657	1,305,178	1,076,478	738,950	2,443
2013	1,003	1,564	1,353	1,534	1,538,334	25.1%	386,450	1,077,876	1,464,327	541,380	922,947	536,496	1,460
2014	1,030	1,036	964	1,426	1,469,163	36.0%	528,594	833,119	1,361,712	3,119	1,358,594	830,000	1,322
2015	1,021	565	565	1,327	1,354,383	43.8%	592,612	415,140	1,007,752	35,104	972,648	380,036	987
TOTAL	6,497				10,802,436		2,422,272	7,253,334	9,675,605	3,743,883	5,931,722	3,509,451	1,489
	<u>Pure Premium Selection</u>				Trend =	0.930							
	3-Year Average x Latest		1,573										
	5-Year Average x Latest		1,327										
	All Year Average x Latest		1,207										
	Selected Pure Premium		1,327										

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>PAID LDM</u> <u>ULTIMATE</u>	<u>SELECTED</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>
1994	-	-	-	-	-	-
1995	115,614	106,826	106,826	106,826	-	-
1996	112,302	119,916	102,681	119,916	17,235	-
1997	-	-	-	-	-	-
1998	711,911	635,092	635,092	635,092	-	-
1999	1,422,182	1,422,182	1,250,602	1,373,691	123,089	48,491
2000	3,374,313	5,210,072	2,920,207	5,210,072	2,289,865	-
2001	932,526	1,415,769	792,848	1,415,769	622,920	-
2002	288,257	436,415	239,493	436,415	196,922	-
2003	551,906	551,906	440,376	481,483	41,107	70,423
2004	1,904,695	1,904,695	1,473,129	1,743,171	270,042	161,523
2005	107,893	79,838	79,838	79,838	-	-
2006	-	-	-	-	-	-
2007	91,848	41,750	41,750	41,750	-	-
2008	123,090	51,787	51,787	51,787	-	-
2009	304,818	304,818	101,655	142,619	40,965	162,198
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	-	1	-	1	1	-
TOTAL	10,041,356	12,281,065	8,236,284	11,838,429	3,602,145	442,636

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Development of Losses to Ultimate

RY	Development Period in Months																					252 - 264	264 - ULT
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252			
1994																						1,072	
1995							2,144	1,250	1,102	1,016	1,278	1,153	1,000	1,048	1,141	1,010	1,042	1,000	1,000	1,000	1,010	1,072	
1996										1,967	1,516	1,030	1,000	1,104	1,620	1,057	1,109	1,113	1,009	1,011	1,010	1,072	
1997																			1,012	1,011	1,010	1,072	
1998		2,879	1,306	1,090	1,020	1,000	1,056	1,070	1,037	1,019	1,055	1,046	1,006	1,009	1,000	1,000	1,000	1,013	1,012	1,011	1,010	1,072	
1999	1,701	2,649	1,129	1,235	1,136	1,319	1,105	1,061	1,055	1,049	1,055	1,024	1,016	1,002	1,007	1,007	1,014	1,013	1,012	1,011	1,010	1,072	
2000	1,962	1,171	1,107	1,048	1,046	1,070	1,068	1,150	1,105	1,047	1,036	1,019	1,040	1,028	1,016	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2001			7,454	2,945	2,045	1,350	1,237	1,305	1,137	1,164	1,109	1,073	1,141	1,052	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2002		4,517	2,551	1,068	1,086	1,000	1,038	1,904	1,113	1,019	1,000	1,065	1,000	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2003	1,224	1,255	1,000	1,000	1,000	1,317	1,736	1,067	1,029	1,286	1,111	1,054	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2004		3,475	1,113	1,759	1,221	1,157	1,322	1,092	1,254	1,712	1,027	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2005	1,794	1,493	1,622	1,000	1,316	1,173	1,202	1,079	1,000	1,000	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2006										1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2007		2,517	1,169	1,000	1,000	1,000	1,000	1,000	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2008		1,226	1,100	1,000	1,000	1,000	1,000	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2009			1,105	1,340	1,052	1,375	1,262	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2010						1,167	1,262	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2011					1,022	1,167	1,262	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2012				1,122	1,022	1,167	1,262	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2013			1,166	1,122	1,022	1,167	1,262	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2014		1,941	1,166	1,122	1,022	1,167	1,262	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	
2015	2,142	1,941	1,166	1,122	1,022	1,167	1,262	1,080	1,163	1,400	1,045	1,032	1,041	1,023	1,018	1,016	1,014	1,013	1,012	1,011	1,010	1,072	

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	113,506	326,771	426,734	465,016	474,091	474,091	500,870	536,142	555,872	566,448	597,852	625,365	629,257	635,092	635,092	635,092	635,092	643,373	650,923	657,798	664,051	711,911
1999	91,601	155,804	412,759	466,204	575,644	653,770	862,519	953,244	1,011,272	1,067,094	1,119,362	1,181,084	1,209,850	1,229,249	1,232,121	1,241,346	1,250,602	1,268,720	1,285,263	1,300,346	1,314,080	1,326,571	1,422,182
2000	600,543	1,178,120	1,380,065	1,527,820	1,601,730	1,675,915	1,792,516	1,914,991	2,202,232	2,433,794	2,547,274	2,638,146	2,687,862	2,795,225	2,873,605	2,920,207	2,967,216	3,010,205	3,049,455	3,085,241	3,117,827	3,147,463	3,374,313
2001	-	-	4,285	31,943	94,057	192,393	259,731	321,220	419,351	476,821	555,214	615,741	660,726	753,773	792,848	807,029	820,021	831,901	842,748	852,638	861,644	869,834	932,526
2002	-	7,498	33,870	86,415	92,333	100,309	100,309	104,163	198,304	220,667	224,817	224,817	239,493	239,493	245,080	249,464	253,480	257,152	260,505	263,562	266,346	268,878	288,257
2003	75,879	92,879	116,529	116,529	116,529	116,529	153,490	266,468	284,207	292,415	376,033	417,688	440,376	458,541	469,239	477,632	485,320	492,352	498,772	504,625	509,954	514,802	551,906
2004	-	48,087	167,082	185,942	327,157	399,428	462,288	611,344	667,682	837,489	1,433,954	1,473,129	1,519,791	1,582,480	1,619,401	1,648,366	1,674,901	1,699,167	1,721,322	1,741,522	1,759,916	1,776,645	1,904,695
2005	9,181	16,467	24,588	39,884	39,884	52,485	61,585	74,021	79,838	79,838	79,838	83,447	86,090	89,641	91,732	93,733	94,876	96,251	97,506	98,650	99,692	100,640	107,893
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	14,192	35,720	41,750	41,750	41,750	41,750	41,750	41,750	48,551	67,965	71,037	73,288	76,311	78,091	79,488	80,767	81,937	83,006	83,980	84,867	85,674	91,848
2008	-	38,408	47,087	51,787	51,787	51,787	51,787	51,787	55,951	65,066	91,083	95,200	98,216	102,267	104,653	106,525	108,240	109,808	111,240	112,545	113,734	114,815	123,090
2009	-	-	47,443	52,422	70,244	73,919	101,655	128,244	138,556	161,127	225,556	235,752	243,220	253,252	259,161	263,796	268,043	271,926	275,472	278,704	281,648	284,325	304,818
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994																					
1995							2.144	1.250	1.102	1.016	1.278	1.153	1.000	1.048	1.141	1.010	1.042	1.000	1.000	1.000	
1996										1.967	1.516	1.030	1.000	1.104	1.620	1.057	1.109	1.113	1.009		
1997																					
1998		2.879	1.306	1.090	1.020	1.000	1.056	1.070	1.037	1.019	1.055	1.046	1.006	1.009	1.000	1.000	1.000				
1999	1.701	2.649	1.129	1.235	1.136	1.319	1.105	1.061	1.055	1.049	1.055	1.024	1.016	1.002	1.007	1.007					
2000	1.962	1.171	1.107	1.048	1.046	1.070	1.068	1.150	1.105	1.047	1.036	1.019	1.040	1.028	1.016						
2001			7.454	2.945	2.045	1.350	1.237	1.305	1.137	1.164	1.109	1.073	1.141	1.052							
2002		4.517	2.551	1.068	1.086	1.000	1.038	1.904	1.113	1.019	1.000	1.065	1.000								
2003	1.224	1.255	1.000	1.000	1.000	1.317	1.736	1.067	1.029	1.286	1.111	1.054									
2004		3.475	1.113	1.759	1.221	1.157	1.322	1.092	1.254	1.712	1.027										
2005	1.794	1.493	1.622	1.000	1.316	1.173	1.202	1.079	1.000	1.000											
2006																					
2007		2.517	1.169	1.000	1.000	1.000	1.000	1.000	1.000												
2008		1.226	1.100	1.000	1.000	1.000	1.000														
2009			1.105	1.340	1.052	1.375															
2010																					
2011																					
2012																					
2013																					
2014																					
VOL WTD 3	NA	NA	NA	1.340	1.030	1.166	1.000	1.050	1.227	1.562	1.040	1.065	1.056	1.025	1.012	1.005	1.013	1.052	1.004	1.000	NA
VOL WTD 5	NA	NA	1.102	1.122	1.022	1.167	1.262	1.080	1.163	1.400	1.045	1.032	1.041	1.023	1.018	1.007	1.016	1.052	1.004	1.000	NA
VOL WTD ALL	1.857	1.528	1.166	1.148	1.102	1.138	1.141	1.137	1.105	1.158	1.052	1.035	1.040	1.024	1.020	1.007	1.016	1.052	1.004	1.000	NA
ARITH 3	NA	NA	NA	1.340	1.026	1.125	1.000	1.039	1.127	1.333	1.046	1.064	1.060	1.027	1.008	1.004	1.055	1.057	1.004	1.000	NA
ARITH 5	NA	NA	1.102	1.113	1.017	1.137	1.131	1.059	1.099	1.236	1.057	1.047	1.041	1.023	1.161	1.018	1.050	1.057	1.004	1.000	NA
ARITH ALL	1.670	2.354	1.878	1.317	1.175	1.160	1.265	1.198	1.092	1.228	1.132	1.058	1.029	1.041	1.157	1.018	1.050	1.057	1.004	1.000	NA
5 YR HI LO	NA	NA	NA	1.000	1.000	1.087	1.101	1.073	1.071	1.156	1.057	1.048	1.021	1.019	1.012	1.008	1.042	NA	NA	NA	NA
SELECTED	2.142	1.941	1.166	1.122	1.022	1.167	1.262	1.080	1.163	1.400	1.045	1.032	1.041	1.023	1.018	1.016	1.014	1.013	1.012	1.011	1.010
																					1.072

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Paid Losses

RY	Development in Months																						
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1995	-	-	-	-	-	-	19,195	41,156	51,445	56,701	57,626	73,664	84,921	84,921	88,971	101,542	102,511	106,826	106,826	106,826	106,826	-	
1996	-	-	-	-	-	-	-	-	-	14,203	27,940	42,359	43,615	43,615	48,148	77,977	82,406	91,416	101,779	102,681	-	-	
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1998	-	113,506	326,771	426,734	465,016	474,091	474,091	500,870	536,142	555,872	566,448	597,852	625,365	629,257	635,092	635,092	635,092	635,092	635,092	-	-	-	
1999	91,601	155,804	412,759	466,204	575,644	653,770	862,519	953,244	1,011,272	1,067,094	1,119,362	1,181,084	1,209,850	1,229,249	1,232,121	1,241,346	1,250,602	-	-	-	-	-	
2000	600,543	1,178,120	1,380,065	1,527,820	1,601,730	1,675,915	1,792,516	1,914,991	2,202,232	2,433,794	2,547,274	2,638,146	2,687,862	2,795,225	2,873,605	2,920,207	-	-	-	-	-	-	
2001	-	-	4,285	31,943	94,057	192,393	259,731	321,220	419,351	476,821	555,214	615,741	660,726	753,773	792,848	-	-	-	-	-	-	-	
2002	-	7,498	33,870	86,415	92,333	100,309	100,309	104,163	198,304	220,667	224,817	224,817	239,493	239,493	-	-	-	-	-	-	-	-	
2003	75,879	92,879	116,529	116,529	116,529	116,529	153,490	266,468	284,207	292,415	376,033	417,688	440,376	-	-	-	-	-	-	-	-	-	
2004	-	48,087	167,082	185,942	327,157	399,428	462,288	611,344	667,682	837,489	1,433,954	1,473,129	-	-	-	-	-	-	-	-	-	-	
2005	9,181	16,467	24,588	39,884	39,884	52,485	61,585	74,021	79,838	79,838	79,838	-	-	-	-	-	-	-	-	-	-	-	
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2007	-	14,192	35,720	41,750	41,750	41,750	41,750	41,750	41,750	-	-	-	-	-	-	-	-	-	-	-	-	-	
2008	-	38,408	47,087	51,787	51,787	51,787	51,787	51,787	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2009	-	-	47,443	52,422	70,244	73,919	101,655	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>RY</u>	<u>INC LDM</u> <u>ULTIMATE</u>	<u>PAID</u> <u>LOSS</u>	<u>INCURRED</u> <u>LOSS</u>	<u>CASE</u> <u>RESERVE</u>	<u>IBNR</u> <u>RESERVE</u>	<u>UNPAID</u> <u>LOSS</u>
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	119,916	102,681	119,916	17,235	-	17,235
1997	-	-	-	-	-	-
1998	635,092	635,092	635,092	-	-	-
1999	1,373,691	1,250,602	1,373,691	123,089	-	123,089
2000	5,210,072	2,920,207	5,210,072	2,289,865	-	2,289,865
2001	1,415,769	792,848	1,415,769	622,920	-	622,920
2002	436,415	239,493	436,415	196,922	-	196,922
2003	481,483	440,376	481,483	41,107	-	41,107
2004	1,743,171	1,473,129	1,743,171	270,042	-	270,042
2005	80,208	79,838	79,838	-	371	371
2006	-	-	-	-	-	-
2007	51,987	41,750	41,750	-	10,237	10,237
2008	64,485	51,787	51,787	-	12,698	12,698
2009	177,590	101,655	142,619	40,965	34,971	75,935
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	2	-	1	1	1	2
TOTAL	11,896,708	8,236,284	11,838,429	3,602,145	58,278	3,660,424

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Development of Losses to Ultimate

RY	Development Period in Months																						
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - ULT	
1994																						1,000	
1995	1,000	100000,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,067	1,000	1,000	0,805	1,291	1,096	0,885	0,994	1,000	1,000	1,000	1,000	1,000	
1996	0.231	1,000	1,000	2,333	2,000	1,000	0.286			1,079	1,260	1,000	1,000	1,000	1,505	1,058	1,000	1,108	1,000	1,000	1,000	1,000	
1997																						1,000	
1998	1,062	2,451	1,173	0,998	1,460	1,000	0,738	0,814	0,872	1,015	1,047	0,920	1,000	0,988	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
1999	2,490	0,658	1,022	1,103	1,251	0,943	1,026	1,041	1,044	0,966	1,024	1,015	1,000	0,964	1,015	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2000	1,185	1,061	1,073	1,021	0,993	1,023	1,110	1,021	1,248	1,055	0,991	1,174	0,992	1,006	1,049	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2001	3,476	1,429	0,813	0,967	0,918	1,055	1,079	1,009	1,081	1,132	0,972	1,016	1,008	0,934	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2002	3,261	0,902	0,742	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2003	1,004	1,185	1,031	1,000	1,114	1,298	1,128	0,958	1,150	1,051	1,000	0,832	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2004	0,860	3,207	0,981	1,000	0,999	1,000	1,211	0,977	1,540	1,142	1,031	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2005	0,922	0,888	1,000	0,974	1,119	1,000	1,367	0,872	1,000	1,000	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2006										1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2007	0,860	1,000	0,485	1,000	1,000	1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2008	0,577	1,000	0,898	1,000	1,000	1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2009	1,000	2,119	1,000	1,000	1,000	1,346	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2010						1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2011					1,079	1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2012				1,017	1,079	1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2013			1,000	1,017	1,079	1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2014		1,187	1,000	1,017	1,079	1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
2015	1,529	1,187	1,000	1,017	1,079	1,000	1,000	1,000	1,169	1,060	1,005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1995	1	1	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	106,701	106,701	106,701	85,921	110,921	121,542	107,511	106,826	106,826	106,826	106,826	106,826	106,826
1996	65,000	15,001	15,001	15,001	35,001	70,001	70,001	20,000	-	50,001	53,940	67,940	67,940	67,940	67,940	102,248	108,206	108,206	119,916	119,916	119,916	119,916	
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1998	282,000	299,445	733,820	861,104	859,104	1,254,635	1,254,635	925,870	753,994	657,142	667,199	698,719	642,886	642,886	635,092	635,092	635,092	635,092	635,092	635,092	635,092	635,092	
1999	576,051	1,434,131	943,131	963,453	1,062,740	1,329,280	1,254,083	1,286,407	1,338,653	1,397,656	1,350,524	1,383,455	1,403,917	1,403,917	1,353,916	1,373,691	1,373,691	1,373,691	1,373,691	1,373,691	1,373,691	1,373,691	
2000	2,052,116	2,431,717	2,580,089	2,769,601	2,826,381	2,807,664	2,871,117	3,186,349	3,251,715	4,057,205	4,280,458	4,241,055	4,978,324	4,938,324	4,966,651	5,210,072	5,210,072	5,210,072	5,210,072	5,210,072	5,210,072	5,210,072	
2001	302,096	1,050,043	1,500,023	1,219,231	1,178,913	1,082,184	1,141,921	1,231,922	1,243,082	1,344,127	1,522,137	1,480,155	1,503,301	1,515,771	1,415,769	1,415,769	1,415,769	1,415,769	1,415,769	1,415,769	1,415,769	1,415,769	
2002	200,004	652,311	588,414	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	
2003	250,003	250,882	297,387	306,532	306,532	341,531	443,402	500,006	478,961	550,916	578,916	578,916	481,483	481,483	481,483	481,483	481,483	481,483	481,483	481,483	481,483	481,483	
2004	300,004	258,090	827,611	812,287	812,287	811,862	811,862	983,570	961,290	1,480,232	1,690,604	1,743,171	1,743,171	1,743,171	1,743,171	1,743,171	1,743,171	1,743,171	1,743,171	1,743,171	1,743,171	1,743,171	
2005	75,000	69,181	61,467	61,467	59,884	66,985	66,985	91,585	79,838	79,838	79,838	80,208	80,208	80,208	80,208	80,208	80,208	80,208	80,208	80,208	80,208	80,208	
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2007	100,001	86,012	86,012	41,750	41,750	41,750	41,750	41,750	41,750	48,800	51,747	51,987	51,987	51,987	51,987	51,987	51,987	51,987	51,987	51,987	51,987	51,987	
2008	100,000	57,687	57,687	51,787	51,787	51,787	51,787	51,787	51,787	60,531	64,187	64,485	64,485	64,485	64,485	64,485	64,485	64,485	64,485	64,485	64,485	64,485	
2009	50,001	50,001	105,943	105,943	105,943	105,943	142,619	142,619	142,619	166,701	176,769	177,590	177,590	177,590	177,590	177,590	177,590	177,590	177,590	177,590	177,590	177,590	
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2015	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Selection of Loss Development Factors

RY	Development Period in Months																				
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264
1994																					
1995	1.000	100000.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.067	1.000	1.000	0.805	1.291	1.096	0.885	0.994	1.000	1.000	1.000	
1996	0.231	1.000	1.000	2.333	2.000	1.000	0.286			1.079	1.260	1.000	1.000	1.000	1.505	1.058	1.000	1.108	1.000		
1997																					
1998	1.062	2.451	1.173	0.998	1.460	1.000	0.738	0.814	0.872	1.015	1.047	0.920	1.000	0.988	1.000	1.000	1.000				
1999	2.490	0.658	1.022	1.103	1.251	0.943	1.026	1.041	1.044	0.966	1.024	1.015	1.000	0.964	1.015	1.000					
2000	1.185	1.061	1.073	1.021	0.993	1.023	1.110	1.021	1.248	1.055	0.991	1.174	0.992	1.006	1.049						
2001	3.476	1.429	0.813	0.967	0.918	1.055	1.079	1.009	1.081	1.132	0.972	1.016	1.008	0.934							
2002	3.261	0.902	0.742	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000								
2003	1.004	1.185	1.031	1.000	1.114	1.298	1.128	0.958	1.150	1.051	1.000	0.832									
2004	0.860	3.207	0.981	1.000	0.999	1.000	1.211	0.977	1.540	1.142	1.031										
2005	0.922	0.888	1.000	0.974	1.119	1.000	1.367	0.872	1.000	1.000											
2006																					
2007	0.860	1.000	0.485	1.000	1.000	1.000	1.000	1.000													
2008	0.577	1.000	0.898	1.000	1.000	1.000	1.000														
2009	1.000	2.119	1.000	1.000	1.000	1.346															
2010																					
2011																					
2012																					
2013																					
2014																					
VOL WTD 3	NA	NA	NA	1.000	1.000	1.184	1.000	0.912	1.498	1.113	1.019	0.970	0.996	0.985	1.038	1.000	1.000	1.054	1.000	1.000	NA
VOL WTD 5	NA	2.119	0.964	1.000	1.000	1.138	1.202	0.966	1.302	1.107	0.997	1.084	0.997	0.985	1.042	0.996	0.999	1.054	1.000	1.000	NA
VOL WTD ALL	1.529	1.187	0.981	1.017	1.079	1.022	1.036	0.989	1.169	1.060	1.005	1.070	0.995	0.988	1.043	0.996	0.999	1.054	1.000	1.000	NA
ARITH 3	NA	NA	NA	1.000	1.000	1.115	1.000	0.936	1.270	1.064	1.010	0.949	1.000	0.968	1.021	1.000	1.000	1.054	1.000	1.000	NA
ARITH 5	NA	2.119	0.949	1.000	1.000	1.087	1.145	0.952	1.173	1.065	0.999	1.007	1.000	0.973	1.142	0.986	0.998	1.054	1.000	1.000	NA
ARITH ALL	1.379	7693.608	0.940	1.107	1.143	1.051	0.995	0.969	1.104	1.051	1.036	0.995	0.972	1.030	1.133	0.986	0.998	1.054	1.000	1.000	NA
5 YR HI LO	NA	NA	NA	1.000	1.000	1.000	1.106	0.968	1.075	1.061	0.997	1.010	1.000	0.976	1.032	1.000	1.000	NA	NA	NA	NA
SELECTED	1.529	1.187	1.000	1.017	1.079	1.000	1.000	1.000	1.169	1.060	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
																					TAIL 1.000

TAIL
1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	1	1	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	106,701	106,701	106,701	85,921	110,921	121,542	107,511	106,826	106,826	106,826	106,826	106,826
1996	65,000	15,001	15,001	15,001	35,001	70,001	70,001	20,000	-	50,001	53,940	67,940	67,940	67,940	67,940	102,248	108,206	108,206	119,916	119,916	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	282,000	299,445	733,820	861,104	859,104	1,254,635	1,254,635	925,870	753,994	657,142	667,199	698,719	642,886	642,886	635,092	635,092	635,092	635,092	635,092	635,092	-	-
1999	576,051	1,434,131	943,131	963,453	1,062,740	1,329,280	1,254,083	1,286,407	1,338,653	1,397,656	1,350,524	1,383,455	1,403,917	1,403,917	1,353,916	1,373,691	1,373,691	1,373,691	1,373,691	1,373,691	1,373,691	1,373,691
2000	2,052,116	2,431,717	2,580,089	2,769,601	2,826,381	2,807,664	2,871,117	3,186,349	3,251,715	4,057,205	4,280,458	4,241,055	4,978,324	4,938,324	4,966,651	5,210,072	5,210,072	5,210,072	5,210,072	5,210,072	5,210,072	5,210,072
2001	302,096	1,050,043	1,500,023	1,219,231	1,178,913	1,082,184	1,141,921	1,231,922	1,243,082	1,344,127	1,522,137	1,480,155	1,503,301	1,515,771	1,415,769	-	-	-	-	-	-	-
2002	200,004	652,311	588,414	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415
2003	250,003	250,882	297,387	306,532	306,532	341,531	443,402	500,006	478,961	550,916	578,916	578,916	578,916	578,916	578,916	578,916	578,916	578,916	578,916	578,916	578,916	578,916
2004	300,004	258,090	827,611	812,287	812,287	811,862	811,862	983,570	961,290	1,480,232	1,690,604	1,743,171	-	-	-	-	-	-	-	-	-	-
2005	75,000	69,181	61,467	61,467	59,884	66,985	66,985	91,585	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	100,001	86,012	86,012	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750
2008	100,000	57,687	57,687	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787
2009	50,001	50,001	105,943	105,943	105,943	105,943	105,943	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619	142,619
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Losses Reserves

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	1	1	100,000	100,000	100,000	100,000	80,805	58,844	48,555	43,299	49,075	33,037	21,780	1,000	21,950	20,000	5,000	-	-	-	-	-
1996	65,000	15,001	15,001	15,001	35,001	70,001	70,001	20,000	-	35,798	26,000	25,582	24,326	24,326	19,793	24,271	25,800	16,789	18,137	17,235	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	282,000	185,939	407,049	434,369	394,088	780,544	780,544	425,000	217,852	101,270	100,751	100,867	17,521	13,629	(0)	(0)	(0)	(0)	-	-	-	-
1999	484,450	1,278,327	530,372	497,249	487,096	675,510	391,564	333,163	327,380	330,562	231,162	202,371	194,067	174,668	121,794	132,345	123,089	-	-	-	-	-
2000	1,451,573	1,253,597	1,200,024	1,241,781	1,224,651	1,131,749	1,078,601	1,271,357	1,049,483	1,623,411	1,733,184	1,602,909	2,290,463	2,143,099	2,093,046	2,289,865	-	-	-	-	-	-
2001	302,096	1,050,043	1,495,738	1,187,288	1,084,856	889,791	882,190	910,702	823,731	867,306	966,923	864,414	842,575	761,997	622,920	-	-	-	-	-	-	-
2002	200,004	644,813	554,545	350,000	344,082	336,106	336,106	332,252	238,111	215,747	211,598	211,598	196,922	196,922	-	-	-	-	-	-	-	-
2003	174,124	158,003	180,858	190,003	190,003	225,002	289,911	233,539	194,754	258,501	202,883	161,228	41,107	-	-	-	-	-	-	-	-	-
2004	300,004	210,003	660,528	626,345	485,130	412,434	349,574	372,227	293,609	642,744	256,650	270,042	-	-	-	-	-	-	-	-	-	-
2005	65,819	52,714	36,880	21,583	20,000	14,500	5,400	17,564	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	100,001	71,820	50,291	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	100,000	19,279	10,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	50,001	50,001	58,500	53,521	35,699	32,024	40,965	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Ratio of Paid to Incurred Losses

RY	Development in Months																					
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>	<u>96</u>	<u>108</u>	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
1994																						
1995	0%	0%	0%	0%	0%	0%	19%	41%	51%	57%	54%	69%	80%	99%	80%	84%	95%	100%	100%	100%	100%	
1996	0%	0%	0%	0%	0%	0%	0%	0%		28%	52%	62%	64%	64%	71%	76%	76%	84%	85%	86%		
1997																						
1998	0%	38%	45%	50%	54%	38%	38%	54%	71%	85%	85%	86%	97%	98%	100%	100%	100%	100%				
1999	16%	11%	44%	48%	54%	49%	69%	74%	76%	76%	83%	85%	86%	88%	91%	90%	91%					
2000	29%	48%	53%	55%	57%	60%	62%	60%	68%	60%	60%	62%	54%	57%	58%	56%						
2001	0%	0%	0%	3%	8%	18%	23%	26%	34%	35%	36%	42%	44%	50%	56%							
2002	0%	1%	6%	20%	21%	23%	23%	24%	45%	51%	52%	52%	55%	55%								
2003	30%	37%	39%	38%	38%	34%	35%	53%	59%	53%	65%	72%	91%									
2004	0%	19%	20%	23%	40%	49%	57%	62%	69%	57%	85%											
2005	12%	24%	40%	65%	67%	78%	92%	81%	100%	100%	100%											
2006																						
2007	0%	16%	42%	100%	100%	100%	100%	100%	100%													
2008	0%	67%	82%	100%	100%	100%	100%	100%														
2009	0%	0%	45%	49%	66%	70%	71%															
2010																						
2011																						
2012																						
2013																						
2014																						
2015	0%																					

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
Remedial AST
Determination of Pure Premium

(1) <u>RY</u>	(2) PAID LDM <u>ULTIMATE</u>	(3) INC LDM <u>ULTIMATE</u>	(4) SELECTED <u>ULTIMATE</u>	(5) POTENTIAL <u>SITES</u>	(6) PURE <u>PREMIUM</u>
2008	51,787	64,485	58,136	2,055	28
2009	304,818	177,590	241,204	2,051	118
2010	-	-	-	2,049	-
2011	-	-	-	2,044	-
2012	-	-	-	2,040	-
2013	-	-	-	2,040	-
2014	-	-	-	2,039	-
2015	1	2	2	2,038	0
TOTAL	356,606	242,078	299,342	16,356	18

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POTENTIAL SITES	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT UNPAID	EXPECTED UNPAID	PAID LOSSES	INDICATED ULTIMATE	INCURRED LOSSES	IBNR RESERVE	CASE RESERVE	ULTIMATE PURE PREM
2008	2,055	28	32	21	42,153	57.9%	24,418	51,787	76,205	51,787	24,418	-	37
2009	2,051	118	132	21	42,912	66.7%	28,601	101,655	130,256	142,619	(12,363)	40,965	64
2010	2,049	-	-	21	43,728	71.4%	31,237	-	31,237	-	31,237	-	15
2011	2,044	-	-	22	44,494	72.1%	32,063	-	32,063	-	32,063	-	16
2012	2,040	-	-	22	45,295	75.1%	34,017	-	34,017	-	34,017	-	17
2013	2,040	-	-	23	46,201	78.6%	36,336	-	36,336	-	36,336	-	18
2014	2,039	-	-	23	47,102	89.0%	41,920	-	41,920	-	41,920	-	21
2015	2,038	0	0	24	48,020	94.9%	45,554	-	45,554	1	45,553	1	22
TOTAL	16,356				359,904		274,147	153,442	427,588	194,407	233,181	40,966	26
	<u>Pure Premium Selection</u>				Trend =	1.020							
	3-Year Average x Latest			-									
	5-Year Average x Latest			-									
	All Year Average x Latest			24									
	Selected Pure Premium			24									

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2015
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POTENTIAL SITES	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT IBNR	EXPECTED IBNR	INCURRED LOSSES	INDICATED ULTIMATE	PAID LOSSES	UNPAID LOSS	CASE RESERVE	ULTIMATE PURE PREM
2008	2,055	28	32	21	42,153	19.7%	8,301	51,787	60,088	51,787	8,301	-	29
2009	2,051	118	132	21	42,912	19.7%	8,450	142,619	151,069	101,655	49,415	40,965	74
2010	2,049	-	-	21	43,728	19.7%	8,611	-	8,611	-	8,611	-	4
2011	2,044	-	-	22	44,494	25.6%	11,382	-	11,382	-	11,382	-	6
2012	2,040	-	-	22	45,295	26.8%	12,152	-	12,152	-	12,152	-	6
2013	2,040	-	-	23	46,201	26.8%	12,395	-	12,395	-	12,395	-	6
2014	2,039	-	-	23	47,102	38.3%	18,058	-	18,058	-	18,058	-	9
2015	2,038	0	0	24	48,020	59.7%	28,654	1	28,655	-	28,655	1	14
TOTAL	16,356				359,904		108,004	194,407	302,411	153,442	148,969	40,966	18
	<u>Pure Premium Selection</u>				Trend =	1.020							
	3-Year Average x Latest			-									
	5-Year Average x Latest			-									
	All Year Average x Latest			24									
	Selected Pure Premium			24									